THE BUILDER

a Journal for the

ARCHITECT & CONSTRUCTOR

VOL. CLVII DECEMBER 22 1939 No. 5055

SUMMARY OF CONTENTS

CURRENT ARCHITECTURE
(Illustrated)

PAGE

Newspaper Premises.

EXTENSION FOR "THE DAILY TELEGRAPH," SHOE LANE, E.C. MESSRS. L. A. CULLIFORD AND PARTNERS, F. AND A.R.I.B.A., ARCHITECTS ... 847

Houses.

TWO HOUSES AT MANOR HOUSE DRIVE, BRONDESBURY PARK. MESSRS. CLYDE YOUNG, F.R.I.B.A., AND BERNARD ENGEL, ASSOCIATED ARCHITECTS ... 849

A.R.P. Shelters.

FOR BLOCK DWELLINGS FOR THE LONDON COUNTY COUNCIL ... 851

A Communal Air Raid Shelter.

A.R.P CO-ORDINATING COMMITTEE'S DESIGN ... 852

ARTICLES AND NEWS

LEADER : SETTING THE ARCHITECTURAL COURSE ... 841
NOTES AND NEWS ... 843
CORRESPONDENCE ... 843
THE ARCHITECT STATES HIS CASE. BY C. BERTRAM PARKES, L.R.I.B.A. ... 844
R.I.B.A. MEMBERSHIP ... 845
A.A.S.T.A. : THE ANNUAL GENERAL MEETING ... 846
BOOK REVIEW ... 846
REDUCTION OF NOISE IN BUILDINGS ... 855
THE EMPLOYER AND SUB-CONTRACTOR : PAYMENT DIRECT. BY W. T. CRESWELL, K.C. ... 856
EMERGENCY INQUIRY BUREAU ... 856
WAR RISK INSURANCE ... 857
IN PARLIAMENT ... 857

A.R.P. INFORMATION

A.R.P. CO-ORDINATING COMMITTEE : REPORT TO SIR JOHN ANDERSON ... 854
A.R.P. SCHEMES ... 859

BUILDING INFORMATION

NEW BUILDINGS IN LONDON ... 858
CONTRACTS OPEN ... 860
NEW CINEMA ... 861
CURRENT AND PROPOSED BUILDING WORK ... 861
RATES OF WAGES IN THE BUILDING INDUSTRY ... 862
PRICES CURRENT OF MATERIALS ... 863
THE SCOTTISH BUILDER ... 864
TENDERS ... 865

EVERY FRIDAY 9D.

THE BUILDER LIMITED

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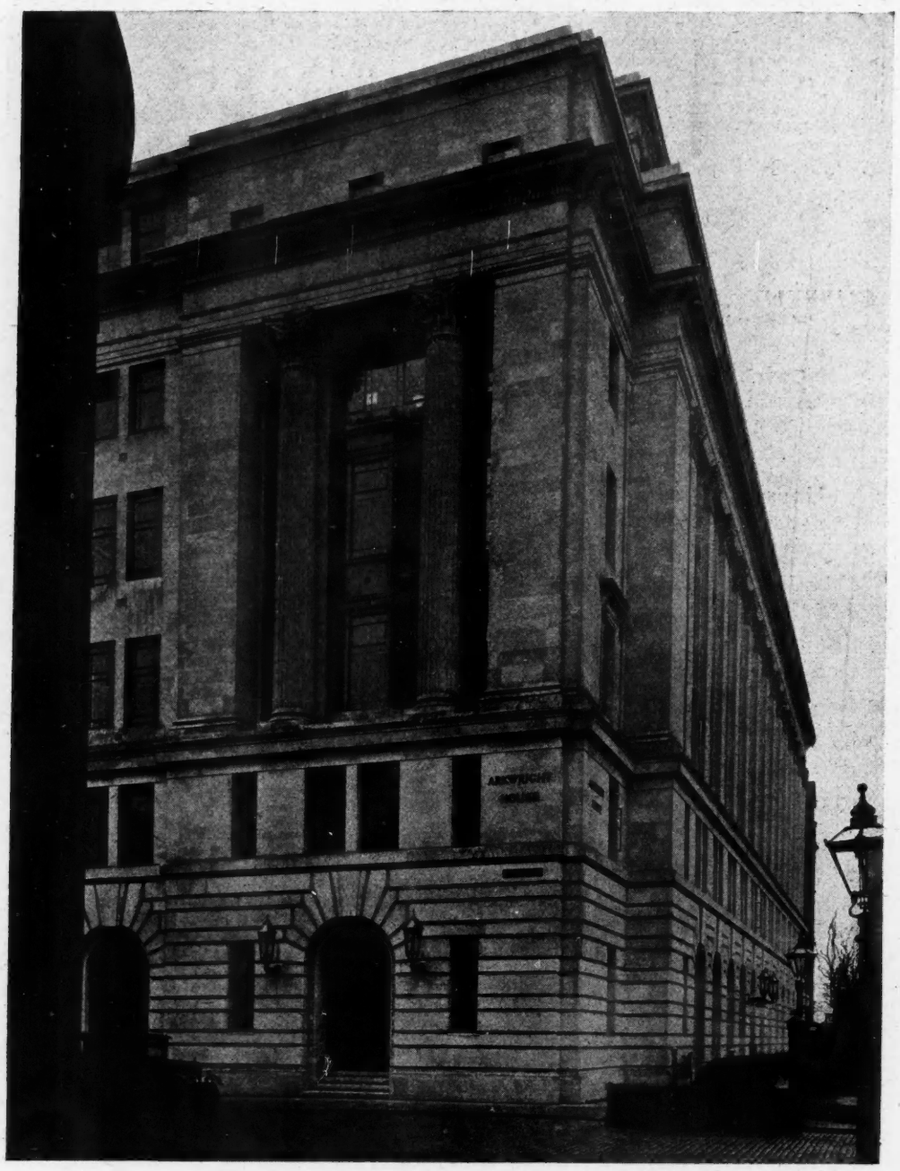
ARKWRIGHT HOUSE, MANCHESTER

The Head Offices of the English Sewing Cotton Co., Ltd.



THE sub-basement, constructed over ten years ago, covers one-third of the site, and has its floor 25 feet below street level. The reinforced concrete was made watertight by the addition of 5 lb. of 'PUDLO' Brand waterproofer to each 100 lb. of the cement. This work was done, as part of their general contract, by Robert Carlyle and Co. Ltd., of Manchester, and still remains completely satisfactory. The architect, Harry S. Fairhurst, A.R.I.B.A., had previously experienced the reliability of 'PUDLO' Brand waterproofer in the construction of a deep riverside basement to the Head Offices of the Bleachers' Association at Manchester, and again specified its use for the same purpose, and in the same way, in the new offices for the "Manchester Guardian."

'PUDLO'

BRAND

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KERNER-GREENWOOD & CO., LTD., ST. ANN'S, KING'S LYNN

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THE BUILDER

INCORPORATING

"ARCHITECTURE" AND "THE BRITISH ARCHITECT"

Vol. CLVII DECEMBER 22 1939 No. 5055

SETTING THE ARCHITECTURAL COURSE

THE informal meeting of the R.I.B.A. last week showed clearly that there is an urgent need for a programme of war aims for the architectural profession. The temper of that meeting plainly was that it is felt to be insufficient that the Institute should press the claims of architects to be allowed to play their part in assisting Government Departments in their constructional activities; several speakers stressed the advantage of undertaking independent research into current problems in whose solution the architect and the building trade can bring their special qualities and resources to bear.

The Institute, it is well to remember, is now aware both of the need to fall in with this desire and also of the advantages that it might bring; a small committee—composed of Mr. Howard Robertson, Mr. Goodhart-Rendel and Mr. R. A. Duncan—has for some time been at work on a report on lines of investigation and research into immediate and future problems. These heads of investigation are to be distributed to study groups.

Working on similar lines, though some way ahead in regard to results, is the A.A.S.T.A. This Association has already produced a report on one aspect of the problem of evacuation, and it is clear that, to judge by the speeches made at its annual meeting (reported on another page), it proposes to undertake further surveys. Yet another organisation which proposes to undertake research into current problems is Mr. Yerbury's Atelier.

These movements are all to the good, yet they could be infinitely strengthened if co-ordination were present. Research of this nature costs money and requires the pooling of energy and brains. Moreover, are not the daily Press, the public and the Government likely to become confused if asked to consider a stream of reports from different bodies—possibly overlapping in regard to subject?

The solution, we are sure, is for differences to be sunk, where these exist, and for the Association to constitute itself as one or more study groups within the R.I.B.A. scheme. Those who object to this proposal should remember that the A.A.S.T.A. is an associated body of the R.I.B.A. and that the latter is able to confer a degree of prestige and solidity on any proposal which should not lightly be thrown aside. If the Association aims to benefit architects and the causes the latter have at heart, then it is better done within the Institute.

The Institute, for its part, must make up with all speed the time it has lost. The devising of a programme and its apportionment to groups is urgent; not less so is the need to look into the question of relating finance, resources and powers. We believe that this is already in hand; quite obviously any such move would gain enormously through the co-operation of all sides engaged.

Finally, a word as to the objectives of a programme of research. Many are asking whether there is a field for the architect in war-time. We believe that in this war there is a very great field, remembering the vital mistakes that were rife in the post-Armistice period through lack of plans. Even in this time of war there is much building that might usefully be done, as is pointed out by Mr. C. Bertram Parkes in an article on page 844.

Any campaign, to be successful, involves two major factors: the first a united architectural front and the second a united building industry. Without unity throughout the chances for construction during war-time must be small; with unity the opportunity for rescuing some permanent values from this time of negation and destruction may be immense.

THE WHITE LION INN, THORNBURY, GLOUCESTERSHIRE.

FROM A PENCIL DRAWING BY A. C. FARE, R.W.A.

NOTES AND NEWS

The War-Time Atelier.

A MEETING of the members of the War-Time Atelier was held on Thursday, December 14, to discuss practical details. It was decided to start work officially on January 1, 1940, when the premises will be ready and heating and lighting, etc., arranged for. The weekly membership fee was fixed for the time being at 2s. 6d. The nuclei of various groups are already formed—including structure and materials, industrial design, hospital research, history from the contemporary angle, films, etc. Anyone wishing to join the Atelier should communicate with Miss Morrison (hon. secretary), at the Building Centre, 158, New Bond-street, W.

Research into House Building: A Glasgow Proposal.

A RESEARCH department for house building is to be established by the Glasgow Corporation. It has been agreed to appoint Mr. Peter Tinto, A.R.I.B.A., to carry out research on building, with special reference to alternative methods of construction, and to prepare reports for the housing committee. Mr. Tinto is to visit other cities and towns to examine housing schemes and to report on useful suggestions to speed up operations in Glasgow.

Communal Air Raid Shelters: Design Submitted to Government.

A DESIGN for communal air raid shelters for the populations of large towns and cities has been submitted to the Minister of Home Security by the A.R.P. Co-ordinating Committee. The design submitted is for a reinforced concrete shelter which can be constructed either above or below ground, and which is consequently suitable for both dry and waterlogged soils. In order to localise the effects from a bomb, the shelter is made up of compartments, each containing from 50-80 persons, according to whether artificial ventilation is provided. By varying the number of compartments, the shelter capacity can be adapted to local requirements. Seating, lighting and sanitary conveniences are provided. An important feature of the design is that the shelter can be constructed in two stages; in the first stage, it gives rather greater safety than the standard covered and lined trench, but it can subsequently, in the second stage, be more heavily protected so as to give any degree of protection desired. The Finsbury Borough Council's plan—now partially carried through—includes a number of the type of shelter advocated. Illustrations are on page 852.

Camouflage of Historic Buildings: Official Advice.

THE Ministry of Home Security, after consultation with responsible Church and other authorities in the United Kingdom, has reached the conclusion that attempts to camouflage cathedrals and other historic buildings would possibly lead to irreparable disfigurement, while involving other and equally grave disadvantages.

Many well-known cathedrals and other historic buildings, it is pointed out, would inevitably be recognised from the air by their characteristic planning and their position, even if their roofs or other surfaces were partially discoloured by painting or some similar treatment. Moreover, the application of any treatment which could be regarded as camouflage might give the enemy opportunity to suggest that the building was being used for military purposes. Any treatment that could be effective as camouflage would have to be carried to such lengths that a great deal of the beauty of ancient buildings, which is the result of the weathering of centuries, might be lost beyond repair, or, at any rate, for many years to come. It is suggested that structural precautions for protection against the effects of air attack may be advisable in some cases, but that this should not extend to external disfigurement, which might well fail to achieve security.

Bodleian Extension: Work to Proceed.

IT is announced that work on the Bodleian Extension is to proceed because this is likely to save money in the long run and the pressure on storage room increases steadily. In the old library it has been decided to experiment with alterations in the south-east corner of the quadrangle to see how the cost of reconstruction works out. The whole scheme seems likely to suffer less dislocation than had been feared.

An Architect's Estate.

MR. HAROLD FRANKLYN MURRELL, F.R.I.B.A., of Beckenham, Kent, and 44, Bedford-row, W.C.1 (net personalty £37,296), left £40,239.

An Appointment.

MR. M. HARRISON has been appointed surveyor to the Washington U.D.C. (Co. Durham). Mr. Harrison is at present with the Tynemouth Corporation.

Professional Announcements.

MR. J. R. HOVENDEN, Chartered Surveyor, has returned to his office at 8, Princes-street, Westminster, S.W.1. Telephone: Whitehall 2092.

MR. GEORGE COLES, F.R.I.B.A., is returning to his old offices at 40, Craven-street, Strand, W.C.2, from which his practice will be carried on as before.

MR. J. H. LANGTRY-LANGTON, A.I.A.S., M.Inst.R.A., architect and surveyor, has changed his address from Central-chambers, 2, Cheapside, Bradford, to Dean House, Piccadilly, Bradford, where all communications should now be sent.

IN 1914.

FROM *The Builder*, DECEMBER 25.

War and Architecture.

We have ample evidence in all ages of the destructiveness of war—of the losses inflicted upon the building arts—but have we ever paused to think of the immense influence war has had upon the extent and character of the architecture of the past? Would it surprise us if we were informed that the great building epochs upon which our present skill and knowledge are based are inseparable from, if not actually due to, the fierce contest for mastery of nation over nation?

Extract from a Presidential Address by Mr. R. Burns Dick to the Northern Architectural Association.

Rates of Wages in the Building Trade: A Comparison.

LONDON.

1914.

Craftsmen.	Labourers.
11½d.	8d.

1939.

Craftsmen.	Labourers.
1s. 9½d.	1s. 4½d.

CORRESPONDENCE

[While we are glad to publish letters on professional and other matters of interest to our readers, it must be understood that we do not necessarily endorse the remarks of correspondents, who will oblige us if they will express their views as briefly as possible.]

Building Projects and the Building Societies.

TO THE EDITOR OF *The Builder*.

SIR,—One of the things which we have yet to see dealt with in the trade press since the outbreak of war is the question of finance.

Builders and property owners up and down the country tell us that building societies have not been prepared to make advances since the outbreak of hostilities, so that projects are held up on every hand. In many instances there are buyers waiting, subject to building society advances.

The builder's lot is certainly not a happy one. Generally his capital, plus something more, is tied up in the buildings. The "something more" represents credit obtained from his suppliers; so that unless he can sell the properties with the assistance of building society finance, he cannot meet his debts. We hear of one concern doing a country-wide business with builders which is standing out of some £300,000 at present.

The question arises—Why are building societies not prepared to make advances at present? Bad news travels fast, and perhaps we have heard only about those areas where they will not make advances, and it may be that there are some areas where they are perfectly prepared to do business as usual.

On the other hand, perhaps the building societies' position is not too easy in these days, inasmuch as investors, who usually deposit their money with the societies, may not be giving them the same support to-day because of a mistaken notion that there is less security in this form of investment than in some other forms, although frankly we cannot see it. Surely the assets of the larger building societies are so well distributed as to put them in a much more favoured category than many ordinary businesses, shares in which are still cheerfully bought by the investing public. Take, for example, a big motor-car manufacturing concern, with its plant and assets worth many hundreds of thousands of pounds, concentrated in one spot; is that not infinitely more vulnerable to the risks of war than a building society with its money invested in properties in all parts of the country?

But perhaps the investors have not got "cold feet," and maybe the building societies are still ready and prepared to make advances but are handicapped by the Emergency Powers Defence Finance Order, which seems to apply to mortgages.

Apart from building society loans, builders and property owners appear to be unable to borrow from the banks or private sources to-day.

The whole question of building finance badly needs ventilating. It is regarded by many as subsidiary to timber supplies.

J. SMITH, Director,
Langley London Limited.

London, S.E.1.

Recent Developments in Architecture.

A paper on "Recent Developments in Architecture" will be read before the Royal Society of Arts by Mr. Howard Robertson, F.R.I.B.A., S.A.D.G., on Wednesday, January 31, at 2.30 p.m. Sir Kenneth Clark, K.B.E., will take the chair.

THE ARCHITECT STATES HIS CASE

BY C. BERTRAM PARKES, L.R.I.B.A.

THE outlook for the architectural profession is admittedly a bad one. Work is rapidly drawing to a close on all contracts but those of national importance. Already many qualified assistants are out of a job, and some principals are beginning to wonder whether they will be able to remain in practice very long.

Members of the profession employed by the Government and by local authorities have not, as yet, been affected to the same degree. In many cases, the architects' and surveyors' departments of municipal councils are snowed under by work. This rush of building does not consist of the usual activities of the departments concerned, but, for the most part, comprises A.R.P. shelters, decontamination centres and other structures for civil defence.

Despite the difficulties under which many local authorities' departments are working, there is little evidence that help is desired, either in the form of co-operation with private practitioners or by giving temporary employment to assistant architects who are now idle.

The reasons for this policy of restricting the staffs are not difficult to guess. Officials themselves feel that it is desirable to keep as much work as possible in their own hands in order to avoid reduction of staffs at a later date, and members of councils undoubtedly believe that by making their staffs work at high pressure they are saving salaries.

The architect who is over 30 years of age has a very difficult position to maintain. As things are at present he may not join the Forces except upon long-term service, and it is extremely unlikely that he will be able to obtain work in any other vocation.

From the point of view of national economy, this is an absurd state of affairs, for in fostering restrictions of this kind the Government is, either wittingly or otherwise, deliberately casting aside the help of a large body of men and women who are trained to do the very thing that is so badly needed in times of supreme national effort. The architect is primarily a planner. His whole method of thought is concerned with smoothing out difficulties of various kinds. In the course of his practice, the architect has to reconcile many apparent incompatibles. From lists of requirements supplied by his clients, he is required to produce workable schemes that often necessitate the study of all kinds of subjects, ranging from transport problems, movements of population and the carrying out of manufacturing processes, to such simple things as portable buildings and even notice-boards.

Waste of Intellect.

In a very short time thousands of persons equipped with knowledge far wider in scope than that of the average manufacturer will be workless, waiting until the Government requires their help in rebuilding damaged property!

One wonders whether, despite the number of times that the position has been put forward by prominent members of the profession, the Government realises the colossal waste of trained intellect that is about to take place.

Architects would, I suggest, be the last people to advocate that building should, at the present time, proceed as usual. They realise that national security must come first. But what they *do* ask is that they may be allowed to place their training and experience at the disposal of their country in spheres of activity for which they are particularly suited.

It seems evident that the appeals already made for the employment of architects have not been sufficiently explicit in emphasising the type of work that the profession is able to do so well. At the risk of mentioning the obvious, I intend to instance a few of the things that could be carried out by architects with expedition and efficiency.

Air Raid Precautions.

The provision of public shelters on open spaces and in basements is a work on which some architects have already been employed. But, on the whole, the services of the profession have not been adequately called upon. Most practitioners have contacts with local builders, who could be employed upon work of this kind without increasing the demands upon public works contractors already engaged by the local authorities. By distributing A.R.P. shelters amongst private practising architects, it would be possible to expedite production enormously because of the speed with which plans could be prepared and the facility with which contracts could be placed with ordinary builders whose normal work has drawn to a close.

Before September last, it seemed that the Government and local authorities were inclined to work along these lines. Now, however, there is little evidence that this is the case.

What is true of local authorities is also true of manufacturers. Under the Civil Defence Act, the larger employers are required to provide adequate protection for their employees. It is feared that some of them are content to construct standard shelters under the direction of their already heavily taxed mechanical engineering staffs. Surely this is a misguided policy when there are hundreds of architects whose business it is to deal with problems of this kind?

The whole subject of A.R.P. is primarily one of planning and organisation, yet those responsible for the conduct of civil defence seem able to ignore the only body of professional people who are essentially trained planners.

Production of Armaments.

Sites are being selected for new armament factories in various parts of the country. Many factors operate in reaching decisions upon the choice of industrial sites—availability of labour, transport, proximity to allied trades and to supplies of materials, the existence of services, etc. Now, it is not suggested that the architect is the only man who can consider adequately all these points, but it *is* maintained that he is capable of taking a hand in this work, and that schemes settled without his early help will probably be less satisfactory than they might have been. This point does not appear to have been duly recognised. The position, at present, is not that architects have been tried and found wanting, but that in many cases they are not being tried at all.

Agriculture.

In view of the necessity for increasing the output of home-produced foodstuffs, an intensive campaign is being waged by the Government. One point that appears to have been overlooked is the necessity for modernising the greater part of the agricultural buildings throughout the country. Farms generally have been allowed to deteriorate during the years since the last war, and nowadays one finds very many farmers working with buildings that are in a dreadful state of repair. On dairy farms, cowhouses exist which are totally unsuited for the production of clean milk. The waste of agricultural labour in working such farms is ridiculous in view of the shortage of man-power in rural areas. Scientific farming is possible, and its advantages are well known to the enlightened farmers of to-day.

Here is a field in which the architect can be legitimately and usefully employed. The Ministry of Agriculture, through the excellent organisation already in existence, ought surely to be empowered to devote its energies to rationalising the production of food, and this can only be done efficiently if facilities are provided for the reconstruction of wasteful farm buildings and for the use of up-to-date equipment.

Cannot architects, many of whom already possess intimate knowledge of farm planning, take steps to bring this point to the notice of the Government? If they are able to do so effectively and to convince the authorities of the necessity for action, they will not only be finding work for themselves but, what is more important, will be helping the country to win the war by increasing the food supply.

Camps and Buildings Occupied by the Forces.

In camps and buildings occupied by the Forces, the necessity often arises for alterations and extensions. Commanding officers need skilled advice in putting their ideas into practice. It is not in the interests of economy for the work of this kind to be placed in the hands of builders direct, and the only valid excuse for so doing that could be made is that there is no authorised body of architects with which Commanding Officers may get into touch except H.M. Office of Works. It is extremely unlikely that this excellent Government Department could undertake expeditiously the whole of the architectural work of this kind required nowadays without a considerable increase in personnel. Therefore, the profession should investigate this matter and, if necessary, advocate either a greater employment of architects in the department, or, alternatively, attempt to set up panels of architects, surveyors and other allied professions which would be officially recognised and available at call, to deal with the problems of Commanding Officers.

Evacuation.

No one knows what will happen to the present scheme of evacuation. If children continue to remain in the safe areas, it is almost certain that the existing billeting arrangements will have to go by the board. More permanent methods will have to be devised for both billets and school accommodation. In conjunction with the education and health authorities, architects can deal with a problem of this kind for, after all, it is primarily one of planning, and differs only slightly from that of housing. As an experiment, it would be well worth while for the Ministry of Health to allow at least one large education authority to work out a complete scheme with the help of technicians, including architects. The result would, in all probability, have far-reaching effects upon the well-being of the younger generation.

Planning for Peace.

I have heard on good authority that large manufacturers in some of the leading industries are quietly laying down

schemes to be put into operation after the war. They realise that it is wise to have ready to hand a policy for immediate use when hostilities cease. The larger the industry, the greater need is there for devoting time during the war to planning for the future.

The building industry, so far as I know, has, up to the present, done very little in this direction. This is a job of work upon which architects, surveyors and builders ought to get busy, for there is not likely to be a great housing programme to absorb their activities as there was in 1919. The building industry ought to prepare itself for doing its part in the work of peace. What the nature of this work may be is at present unknown and will remain so, unless we start to study the problem while we have time. Research, for which many architects are well fitted, is needed. But the research required is not the kind that is carried out by a committee meeting at infrequent intervals; it ought to conform to a definite programme, to include proper investigation, and be based upon statistics and ascertained facts and tendencies.

Slum Clearance and Overcrowding.

One part of the great national housing effort still remains unsolved. Now is the time to devote attention to this problem while the necessity for getting on with the job no longer presses. The muddles that resulted from undue speed in the provision of houses during the last 20 years would not have occurred had it been possible to study the subject adequately during the last war.

Since the services of architects are not yet needed in the conduct of the present conflict, there is an excellent opportunity to devote time and trouble to the problem of slum clearance and rehousing.

Slum clearance is a matter which vitally affects the health of the people, and will have a great influence upon the future of our nation after the war.

When a question of curing some incipient disease arises, money is nearly always forthcoming from public-spirited philanthropists. Thousands of pounds are subscribed for research into the causes and treatment of cancer, tuberculosis, rheumatism and other dreadful ailments. Would it not be equally sensible and worthwhile to finance further research into slum clearance and rehousing that affects the birth, life and death of every citizen?

Architects are the only people who can properly undertake this work. It is true that they need the help of others—statisticians, medical practitioners and surveyors, to mention a few; but the whole problem of dealing with our slums is one of planning in its widest sense.

Can we not ask that the present opportunity for carefully considering post-war housing activities shall be utilised, so that, when the time comes for practical effort, the authorities will know how to proceed on sound lines?

The Private Client.

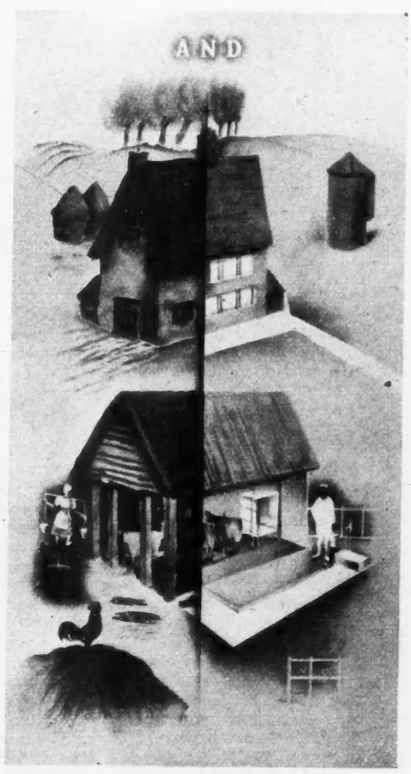
Here and there one finds a wise client who realises that now is the time to plan his post-war house. By so doing, he is assured of his architect's careful study of his particular problem, for speed is not essential. Planning a house without the need for rushing the preliminary stages results in the preparation of a scheme that is as complete as possible, and allows ample opportunity for consideration of alternatives. If building owners generally would face up to the small expenditure on professional fees at the present time, they would not only be getting good value for money, but would also be helping to employ architects and their staffs during the difficult transitional period of the war.

Schemes Are Held Up.

Everywhere one hears of building schemes still in the preliminary stages being held up. This applies not only to work for private owners, but for municipal bodies also. There seems little justification for wholesale postponements of this kind; in fact, very good reasons can be raised for carrying on with proposals up to the stage immediately preceding the asking of tenders.

Anyone who has worked upon the plans for a building, particularly if it is a large one, knows full well that after a scheme has been abandoned for a year or so it is necessary to retrace one's steps over a considerable portion of the ground already covered. This is a waste of time and money, and would not be necessary if schemes were completed and made ready for obtaining estimates. This point ought to be thoroughly emphasised so that public authorities and others may realise the folly of putting aside their building projects merely to save a part of the professional charges, which represent so small a proportion of the total cost.

My object in writing this article has been to enable members of the profession to realise more vividly some of the grounds upon which they may offer to serve their country in their capacity as architects. Most of the points mentioned are familiar to every one of us, but it is hoped that the present statement may help to give us the courage to advocate publicly the value of our services and to point out the loss that will most probably result if those services are not usefully employed.



RURAL HOUSING, OLD AND NEW.

The work of the students in the Faculty of Art at Reading University. It is a reproduction from a wall painting which the students did collectively for a recent exhibition.

R.I.B.A.

MEMBERSHIP.

At a Council Meeting of the R.I.B.A., held on Tuesday, December 12, the following members were elected—

FELLOWS.

H. Bennett (London).
A. D. R. Caroe (London).
G. B. Carter (London).
R. W. G. Cooper (Nottingham).
L. G. Farquhar (London)
L. R. Gower (Cardiff).
M. Joseph (London).
K. Palmer (Leicester).
A. P. Robinson (London).
I. G. Smith (London).
B. H. Toms (A.M.T.P.I.) (London).
F. Gibberd (London).
A. D. Sayers (Slough, Bucks).
J. H. Hollier (Bath).
J. A. Sherman (Ipswich).

ASSOCIATES.

L. W. MacB. Alexander (L'pool Sch. of Arch.), (Liverpool).
J. Bannerman (Sch. of Arch., Edinburgh Coll. of Art), (Edinburgh).
V. C. Barnes (Manchester).
E. W. Beaumont, B.Arch. Hons. (L'pool Sch. of Arch.), (Lancaster).
G. M. Bell (London).
R. A. N. Biggar (A.A.), (London).
S. W. Blackmore, B.Arch. (Dep. of Arch., Univ. of Manitoba, Winnipeg), (London).
Miss M. J. Blanco White (A.A.), (Hull).
H. G. Bloore (Stoke-on-Trent).
M. R. Bool (A.A.), (Bromley, Kent).
A. R. Bramley (Morden, Surrey).
The Hon. L. G. B. Brett, B.A. (London).
J. W. Burton (London).
Miss E. G. Butler (Sch. of Arch., Univ. Coll., Dublin), (Dublin).
W. S. Butler (Sch. of Arch., King's Coll. (Univ. of Durham), (Newcastle-on-Tyne).
J. E. B. Carpenter (Bath).
S. E. Catterall (L'pool Sch. of Arch.), (Garstang, Lancs.).
R. F. H. Chapman (London).
D. J. Clark (Weston-super-Mare).
Miss E. B. Colley (Bartlett Sch. of Arch.), (London).
E. R. Collister (Sch. of Arts and Crafts, Dept. of Arch., Municipal Coll., Southend-on-Sea, and the A.A.), (Chelmsford).
J. MacN. Cowie (Glasgow Sch. of Arch.), (Wishaw).
S. H. Cruden (Sch. of Arch. Edinburgh Coll. of Art) (Edinburgh).
Dr. F. F. C. Curtis (Liverpool).
G. W. Dale (Hertford).
J. Deuchars (Dundee).
A. C. Dewey (Winchester).
A. D. Edwards (Leicester).
C. H. Elsom (London).
A. S. Eve (London).
G. W. Fairbairn (Lincoln).
K. W. Farms (Wallington, Surrey).
F. E. Finch (Maidstone, Kent).
O. K. Fisher (London).
C. R. Fowkes (London).
G. W. Gelson (Nevilles Cross, Durham).
J. G. L. Gibbs (L'pool Sch. of Arch.), (Newcastle-under-Lyme).
C. P. Greenwood (Wolverhampton).
J. Greenwood (Northallerton, Yorks.).
S. C. Halbritter (A.A.), (London).
H. O. Hamilton (London).
K. W. Hamilton (Gravesend, Kent).
E. B. Harris (Coventry).
J. S. Heathcote (West Bridgford, Notts.).
L. R. Hibberd (March, Cambs.).
F. K. Hicklin (Derby).
C. Hindle (Douglas, I.O.M.).
A. E. Hollely (Dept. of Arch., Univ. of Sheffield) (Worksop, Notts.).
G. F. Horsfall (L'pool Sch. of Arch.), Heysham).
F. F. Howard (Brighton, Sussex).
H. A. Hunt (Harrow, Middlesex).
L. B. Hunt (Haywards Heath, Sussex).
H. G. Jacobs (Bournemouth).
B. V. James (Cannock, Staffs.)
S. P. Jordan (Sch. of Arch., Polytechnic, Regent Street, London), (London).
I. Kaufman (London).
R. F. Kennedy, Dip. Arch. (Glas.), (Glasgow Sch. of Arch.), (Harthill, Lanarkshire).
R. K. Kinton (Northampton).
Miss M. Kohn-Speyer (A.A.), (Bletchingley, Surrey).
J. S. Lacey (A.A.), (London).
K. R. Lack (Esher, Surrey).
Mrs. S. R. Lamb (B'ham. Sch. of Arch.), (Taunton, Somerset).
J. Lawton (Sheffield).
G. Lee (London).
A. T. Lindsay (Glasgow Sch. of Arch.), (Greenock, Scotland).
L. C. Lomas (Southport, Lancs.).
N. A. Lyon (Cambridge).
R. McGuire (Preston, Lancs.).
M. L. McIsaac (Glasgow).
K. L. Maggs (Gloucester)
J. C. Marston (Warrington).
M. E. Meacher (L'pool Sch. of Arch.), (Deganwy, N. Wales).
R. R. Meadows (Hull).
F. C. Ménage (London).
S. R. G. Mence (London).
C. L. Morris (London).
J. A. H. Mottram (Sch. of Arch., Edinburgh Coll. of Art.), (East Lothian, Scotland).
D. Myers (London).
C. N. Nettleton (Middlesbrough).
G. H. Oliver (Northwood, Middlesex).
Miss B. Oram (Rothley, Leicestershire).
E. V. Pack (Chichester, Sussex).
N. F. Pearce (London).
C. A. Perry (Birkenhead).
A. Pott (A.A.), (London).
A. R. Pratt, P.A.S.I. (Harrow, Middlesex).
W. H. Prince (Leicester).
S. C. Readman (A.A.), (Leigh-on-Sea, Essex).
G. G. Rhodes (Bartlett Sch. of Arch.), (Westcliff-on-Sea, Essex).
A. J. Ridley (Glasgow).
Miss D. M. H. Room (A.A.), (London).
Miss A. Rowntree (A.A.), (Fareham, Hants.).
E. C. R. Sandon (Woodbridge, Suffolk).
E. T. Sargent (London).
L. G. Scott (Redhill, Surrey).
R. M. Scott (A.A.), (London).
H. H. B. Sheppard (Slough, Bucks.).
J. R. Sketchley (Loughborough).
E. S. Sunderland (Derby).
C. G. Tagholm (Swansea).
C. P. Thesiger, B.A. Arch. (Bartlett Sch. of Arch.), (Sunninghill, Berks.).
W. W. Thomas (York.).
R. B. Thorpe (Leicester).
G. Tombazis (Glasgow Sch. of Arch.), (Glasgow).
D. R. N. Tooth (London).
J. F. Torry (Ayr, Scotland).
S. Towndrow (Grotton, Nr. Oldham, Lancs.).
F. C. Vernon (Carlisle).
A. W. Walls (Ilford, Essex)
Mrs. B. L. Watson (Bromley, Kent).
J. Wheeler (A.A.), (Crowthorne, Berks.).
J. M. Whittle (London).
F. L. Willars (Derby).
R. G. Wood (London).
A. J. Woodhead (Orpington, Kent).

LICENTIATES.

C. K. Adams (Nottingham).
F. B. Allen (Northampton).
H. L. Barnard (London).
H. S. T. Best (London).
G. H. Broadbent (Preston).
H. A. N. Brockman (London).
W. Clark (London).
H. Elder (Manchester).
E. B. Elford (Poole).
M. R. Fletcher (Worthing, Sussex).
N. Fletcher (Nelson).
H. C. R. Frost (Northampton).
C. A. Golding, P.A.S.I. (Brighton).
E. W. Grater (London).
W. H. Grayson (Gloucester).
H. Harding (Manchester).
A. J. Hayes (Cardiff).
T. Hayes (Oldham).
T. Leigh (Chorley).
F. J. T. Mew (Newport, I.O.W.).
H. G. H. Mills (London).
K. A. Milner (Huntingdon).
W. Newham (London).
W. S. Newman (Tunbridge Wells).
J. E. H. Paisley, B. Arch. (London).
C. A. Pilkington (Nottingham).
D. J. Read (Bournemouth).
Capt. A. G. Robertson (Swansea).
E. L. Robinson (London).
W. H. Russell (Leeds).
P. V. Seward (Boscombe).
H. J. Shepherd (Sheffield).
A. W. Stringer (London).
S. H. Tyler (Bristol).
C. W. Warr (Bournemouth).
A. Whitaker (Sheffield).

A.A.S.T.A.

THE ANNUAL GENERAL MEETING.

THE annual general meeting of the Association of Architects, Surveyors and Technical Assistants was held at 12, Great Newport-street, W.C.2, on December 16, when Mr. V. L. Nash, A.R.I.B.A., was re-elected President. The four Vice-presidents are to be Messrs. R. C. Fisher, A.R.I.B.A., R. D. Manning, A.R.I.B.A., P. J. Marshall, A.R.I.B.A., and C. T. Penn, A.R.I.B.A.; members of the new Council are Messrs. H. L. Barton, A.R.I.B.A., F. N. Brayshaw, J. Conn, T. Connor, P.A.S.I., R. E. Cooper, F. P. Harrison, H. S. King, F. Lasserre, B.Arch., A. G. Ling, A.R.I.B.A., F. J. Maynard, A.R.I.B.A., J. H. Millman, D. E. Percival, A.R.I.B.A., J. A. Pinckheard, A.R.I.B.A., J. W. Poltock, A.R.I.B.A., H. J. E. Pyne, L.R.I.B.A., C. H. Rattenberry, L. H. B. Roberts, H. G. Speakman, A.R.I.B.A., E. A. D. Tanner, A.R.I.B.A., R. L. Townsend, A.R.I.B.A., W. L. Vinycomb, A.R.I.B.A., D. M. Wilson, A.R.I.B.A.

After the tea interval an open meeting was held, at which the main speakers were Mr. O. W. Roskill, Prof. W. G. Holford, A.R.I.B.A., M.T.P.I., and Mr. R. L. Townsend, A.R.I.B.A. Mr. Colin Penn was in the chair.

MR. ROSKILL remarked that the basic material resources of the nation remained the same in war as in peace, but those resources could not now serve certain social needs, but must be used solely to win the war. In order to do this we must, first, cut new capital investment and expenditure on the maintenance of existing capital investments; second, increase production, and third, reduce personal consumption. "A high level of expenditure on civil activities during the war," continued the speaker, "is not in the interests of the nation. The war cannot be fought without reducing expenditure on social services. Not only will any previous rise in standards of living have to be stopped, but a reduction is essential." For a number of years the proportionate expenditure of Local Authorities on housing had decreased—from over 68 per cent. in 1935 to under 57 per cent. in 1939.

In opposing the continuation of housing work the Minister of Health had said that such work would strain personnel of Local Authorities when they were already overburdened with emergency work, that it was necessary to conserve the capital resources of the country by restricting the borrowing power of Local Authorities, and that it was necessary to reserve materials for essential work. With regard to the labour position, the speaker said that the change over from civil employment to employment on military work could not be a smooth one. In mid-October there were 224,990 unemployed in the building and public works sections of the industry, 13 per cent. and 26 per cent. of insured workers in the two sections. That unemployment was creating a demand for the continuance of building work, but the policy should be to organise a transfer of those men to essential war work. The employment situation had a marked regional character. London had, in effect, become a new depressed area. The great growth of certain industrial areas has created a housing problem in those areas, and a minimum of building was necessary there.

The Government had decided on a great reduction in public works expenditure, a cut of £50,000,000 in the four-year roads programme, but the speaker said that he hoped authorities would remember that as much as three years' preparatory planning and designing work was necessary before it was possible to embark on any large new public works programme.

As for architects, unemployment was certainly growing, and was especially serious among those relying on private building. The speaker said that he saw no chance of employment for them other than in the Services or in other similar activities. In the great American economic slump men had been put to work surveying the technical difficulties of the industry. He believed that the present method of contracting on a cost plus profit basis and the use of traditional building materials should be subjected to a critical examination. The time factor should be considered, and building policy and technique co-ordinated.

In the later discussion Mr. Roskill said that he thought the efforts of the Building Industries' National Council to obtain a resumption of civil building were doomed to failure.

"A Grain of Comfort."

PROFESSOR HOLFORD, who followed, was perhaps a little more comforting. This situation, he said, was not a very pleasant one for architects. Military people did not seem to look with favour on planning, the typical militia camp resembling a box of bricks emptied haphazard over the site. The Ministry of Supply had a use for engineers, but little for architects, while other Government Departments seemed to neglect architects altogether. Unemployment among architects was worse than in the building industry as a whole. In some places, such as London, assistants were having a pretty raw deal.

Continuing, the speaker said that he believed planning might develop in any one of three directions in the future. We might have a continuation of the present situation with families in the country, essential workers in the towns—a situation which might last for years. We might have a return to urban conditions, living in towns but with spare accommodation, and with camps and similar accommodation ready in the country for an emergency. Thirdly, we might have a super urbanisation, with a few satellite towns provided with well-planned and effective A.R.P. in order to minimise the dislocation and movement of population. A compromise among the three would probably be made. If the first direction was followed we might see an improvement in reception units, schools, and possibly houses, with green belts around towns, a certain amount of central redevelopment and traffic relief schemes. If the second direction was adopted, evacuation building schemes of very large proportions would be necessary, while the third direction involved the whole question of planned A.R.P. and the making of proper civic surveys.

The speaker said that Mr. Roskill mentioned only quantitative unemployment in the industry, but there was also the qualitative factor. Building contracts were going out only to large firms, work was not passing through the hands of architects, and the little man was suffering. The older building craftsman was finding it more difficult to secure employment than the younger and more mobile men. Architects faced a slump, yet there was much work to be done, and trained men were being wasted.

"Liaison between the profession and the authorities must be strengthened," declared the speaker. "A deputation should enlist sympathy in Parliament. We must press for a long-term A.R.P. policy and for the absorption of architects into war departments. And we must also put forward reconstruction schemes. The profession must prove its *bona fides* by doing this work without payment, but some form of public assistance for the work might be obtained once started. Surveys not only of rural but also of central urban schemes are necessary. The Government is employing 5,000 censors, and there is no reason why 5,000 assistants, at say, £4 a week, should not be employed on this initial survey work.

"It is common knowledge that the profession may be taken off the Register of Reserved Occupations very soon. Engineers may be indispensable for war, but architects are certainly indispensable for peace." The R.I.B.A. had made a very bad start and had not yet got back to normal. It was impossible to expect a militant policy from the R.I.B.A.; any policy should come from the A.A.S.T.A., and the support of the R.I.B.A. sought for it. For example, the R.I.B.A. executive had considered the A.A.S.T.A. evacuation report, and had forwarded it to the Ministry of Health.

Mr. R. L. Townsend, who deputised at very short notice for the President of the A.A.S.T.A., Mr. V. L. Nash, who was unfortunately unable to be present, said that they could not accept Mr. Roskill's view of the position unless they wished to commit suicide. They must agitate for a resumption of civil building and the proper employment of architects.

BOOK REVIEW

The Shape of Things. By Noel Carrington. (Nicholson and Watson, Ltd.) With illustrations by Lehlak. 6s. net. Pp. xiv + 209.

From the "blurb" on the jacket, where it is stated that the author was "educated as a philistine"—with the implication that he has now seen the light—one fears the worst; but in fact this little book is a wholly refreshing treatment of the difficult problem of design in daily life, full of common sense and free from the prejudices which so often mar works of this kind. The author's sympathies are, as they should be, with the moderns; yet he sees through much of the illogical hypocrisy that frequently obsesses the partisans of that school of thought. Thus he points out that the craze for streamlining makes certain types of motor-car uncomfortable without any gain in speed; he regards the bar form of doorhandle and the hexagonal tap as unfunctional; he thinks the skyscraper is "a confession of bad planning," and observes that "the utilitarian basis is not the whole of life." He quotes Herbert Read to the effect that "ornament is a psychological necessity," though he castigates bad, excessive and misapplied ornament in several passages.

Other points effectively made are the need for training industrial leaders in the principles and value of design, the fact that England first revolted against the Renaissance tyranny in her garden-design, that taste is variable and irrational, that small manufacturing concerns are more ready to initiate change than large ones, that architects and builders should work more closely together, that the English landscape is very artificial, that the fashionable theory of "regional tradition" in building is overdone, that we owe our national love of trees to John Evelyn, that a modern arterial road should be free from all distractions and interruptions, and that the country cannot be separated from the town. He considers that the garden-city is the only possible solution of our town-planning problems

Whether he is writing of utensils or houses, of cities or landscape or vehicles, he is always clear and always suggestive; and his ideas on art in education are well worth attention. The accompanying sketches are both amusing and effective, but it is a pity that an artist who can draw tables and chairs so well should allow himself to produce so many slipshod illustrations of other subjects.

PERSPECTIVE OF SCHEME AS IT WILL APPEAR WHEN COMPLETED.

EXTENSIONS FOR THE "DAILY TELEGRAPH," SHOE LANE, E.C.

MESSRS. L. A. CULLIFORD AND PARTNERS, F. AND A.R.I.B.A., ARCHITECTS.

WE reproduce above a water-colour perspective view of the complete scheme for an extension of the *Daily Telegraph* at 99-101, Shoe-lane, E.C.4, the first portion of which has just been completed. The extension is for the purpose of installing additional printing presses, providing further storage for reels of paper, and other ancillary extensions of a fast-growing national daily newspaper.

The structure extends to a depth of over 40 ft. into the ground, and, owing to the necessity of the basement and sub-basement floors having the minimum number of columns to interfere with machinery, some very large steelwork has been put into the structure. Two of the stanchions carry 2,800 tons and 2,400 tons respectively, and are amongst the biggest weight-carrying stanchions ever erected in London. The whole building is steel-framed and faced with white faience.

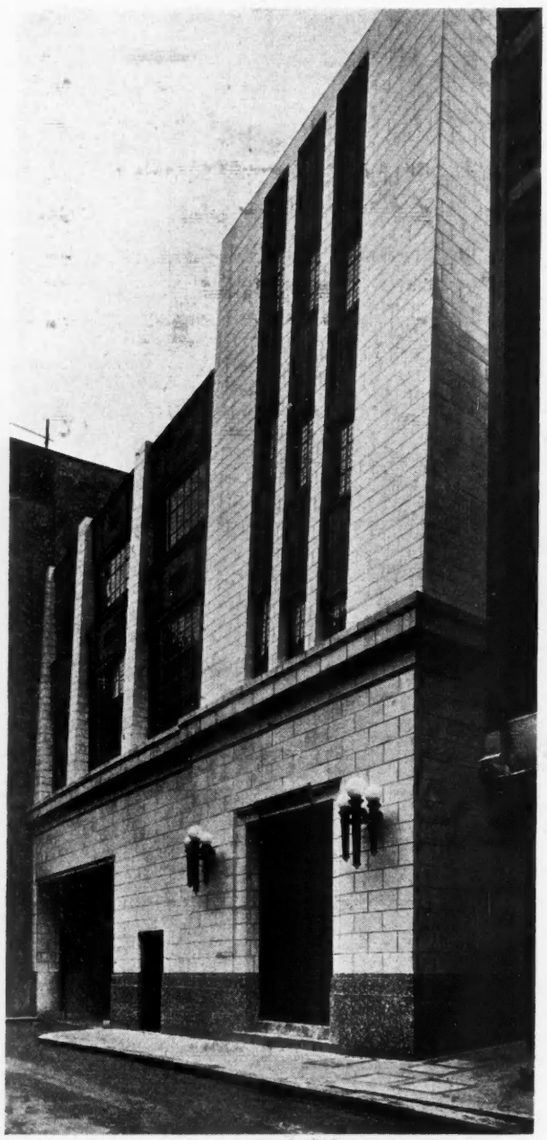
The quantity surveyors were Messrs. Harris and Porter, the consulting civil engineers Messrs. R. T. James and Partners, the consulting electrical engineer Mr. S. P. Ives, and the building contractors Messrs. Holland & Hannen and Cubitts, Ltd.

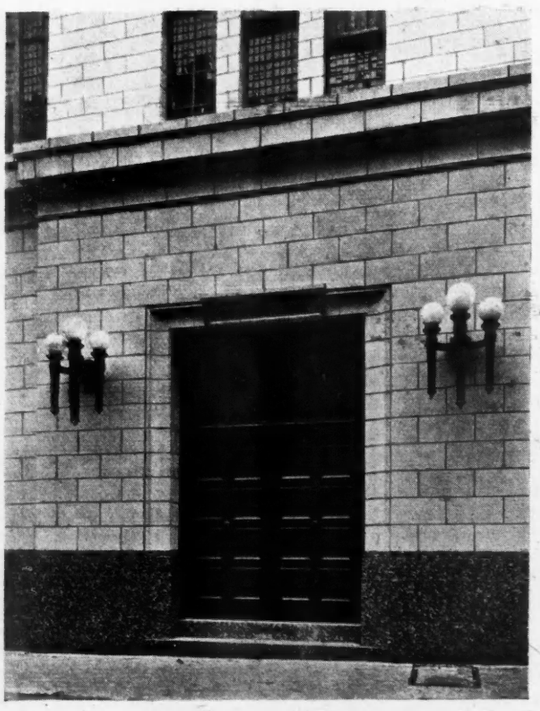
The demolition contractors were Messrs. Goodman Price, Ltd., and the principal sub-contractors were as follows: steelwork, Moreland Hayne and Co., Ltd.; asphalt, Limmer and Trinidad Lake Asphalt Co., Ltd.; pile driving, John Gill Contractors, Ltd.; ground consolidation, John Mowlem and Co., Ltd.; electrical work, Burdette and Co., Ltd.; reel elevator, turntables, turntable and weighbridge, Sovex, Ltd.; faience, Shaws Glazed Brick Company; granite work, Fenning and Co., Ltd.; heating and ventilating, the Abbey Heating Company; lifts, Waygood-Otis, Ltd.; windows, C. E. Welstead, Ltd.; sprinklers and drenchers, Mather and Platt, Ltd.; shutters, Milners' Safe Co., Ltd.; tiling, the Camden Tile Company; terrazzo, Andrews and Adelizzi, Ltd.; flooring (wood), Bennetts Wood Flooring ("Tungit"), Ltd.; balustrade and handrail, Kingsmill Metal Company, Ltd.; door furniture and ironmongery, Yannedis and Co., Ltd.; lead window breasts,

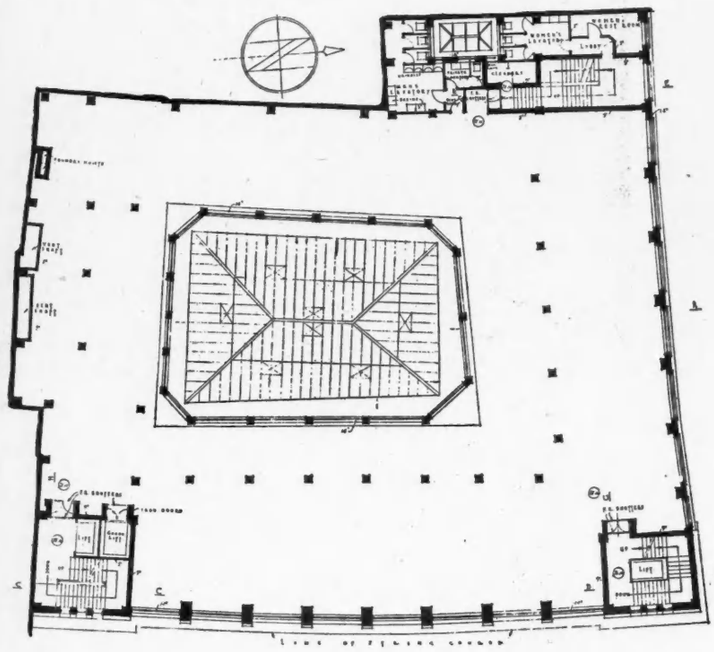
EXTENSIONS FOR THE "DAILY TELEGRAPH," SHOE LANE, E.C.

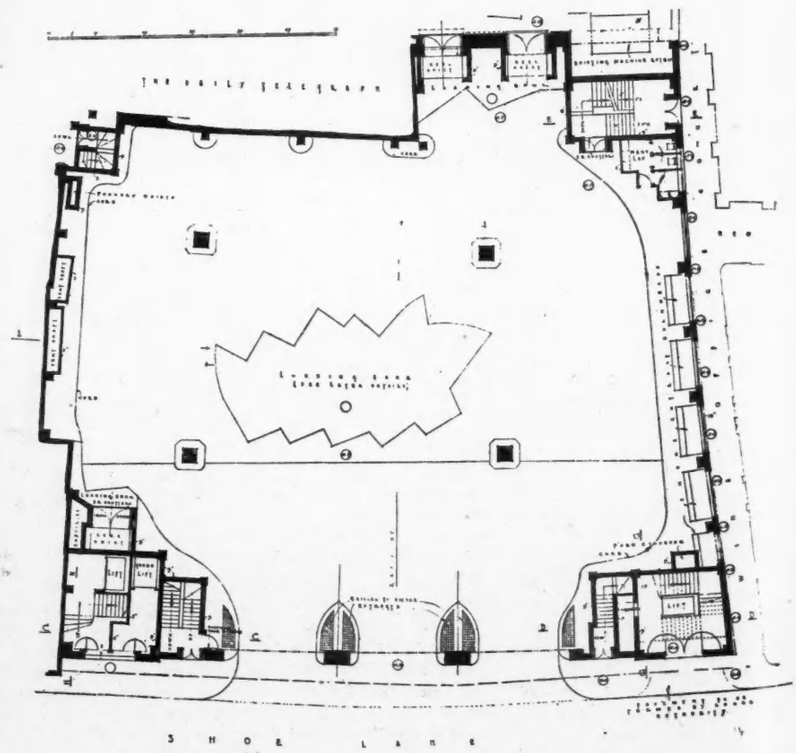
MESSRS. L. A. CULLIFORD AND PARTNERS, F. AND A.R.I.B.A., ARCHITECTS.

the Bromsgrove Guild, Ltd.; iron floor tiles, General Iron Foundry Co., Ltd.; sanitary fittings, Dent and Hellyer, Ltd.; iron staircase, steel reel traps, H. and C. Davis and Co.; sewage pumping plant, Adams Hydraulics, Ltd.; iron doors, collapsible gates, Haywards, Ltd.; bronze lighting fittings, the Cashmore Art Workers; letters above main entrance, Frederick Sage and Co.; and " Plymax " partitions, Venesta, Ltd.





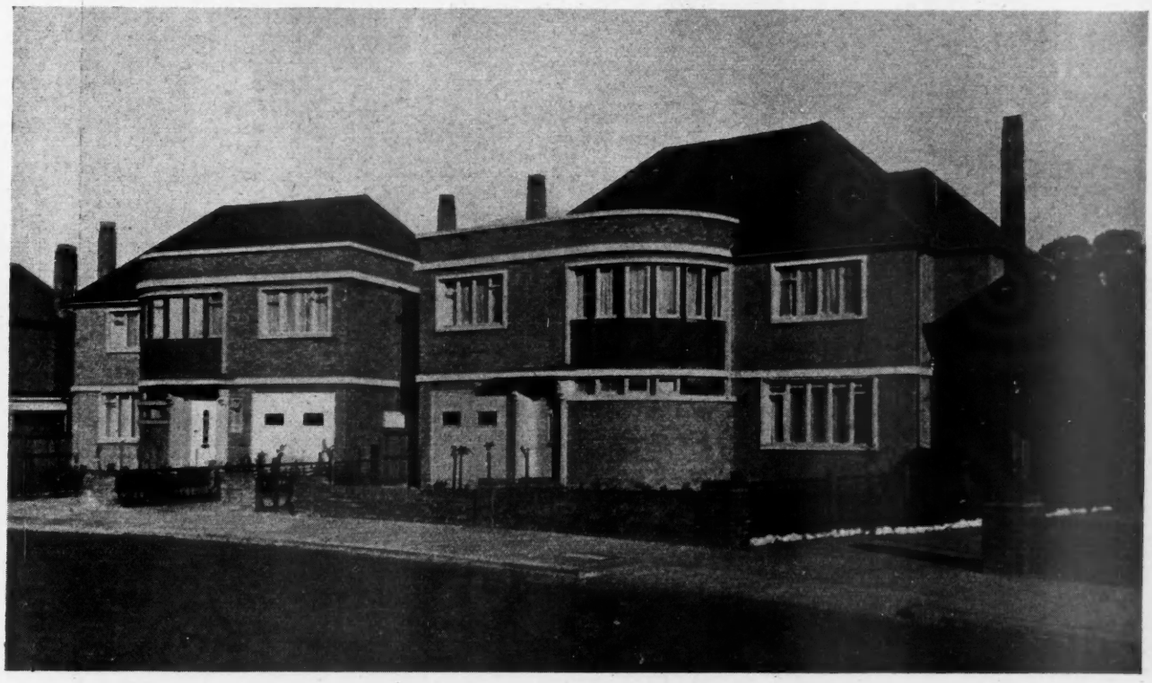




Top (Left): VIEW OF PORTION ERECTED. *(Right)*: SECOND-FLOOR PLAN.
Below (Left): DETAIL OF MAIN ENTRANCE. *(Right)*: GROUND-FLOOR PLAN.

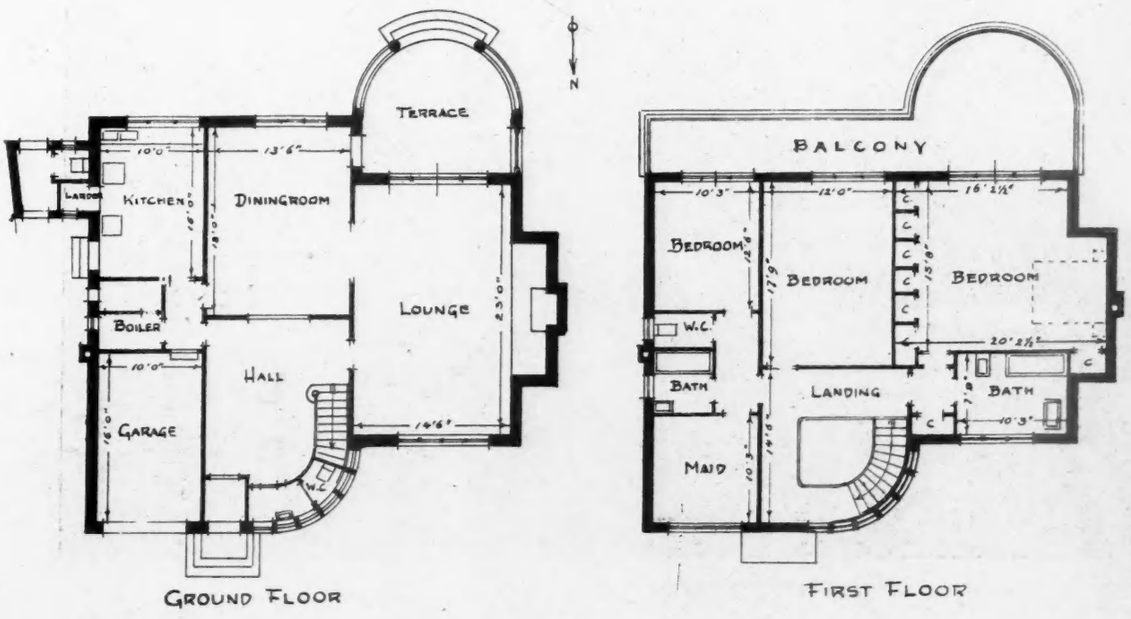
TWO HOUSES AT MANOR HOUSE DRIVE, BRONDESBURY PARK.

MESSRS. CLYDE YOUNG, F.R.I.B.A., AND BERNARD ENGEL, ASSOCIATED ARCHITECTS.

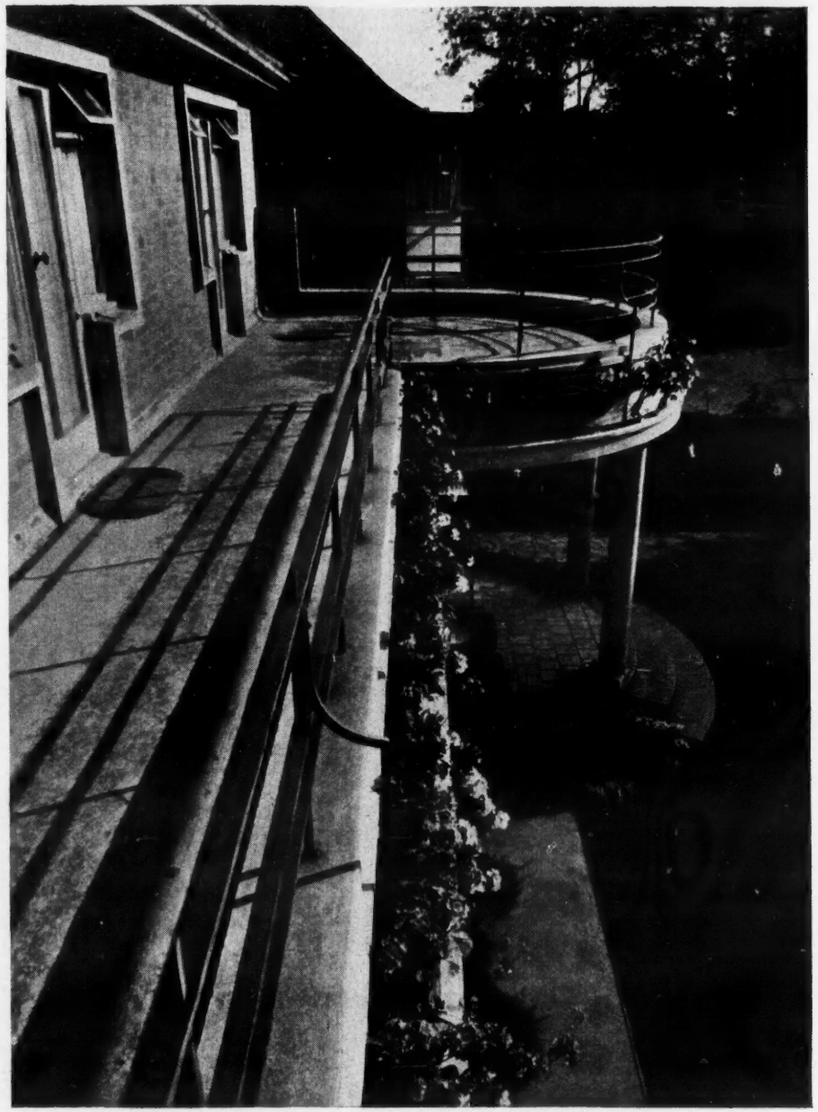


21 AND (RIGHT) 23, MANOR HOUSE DRIVE.

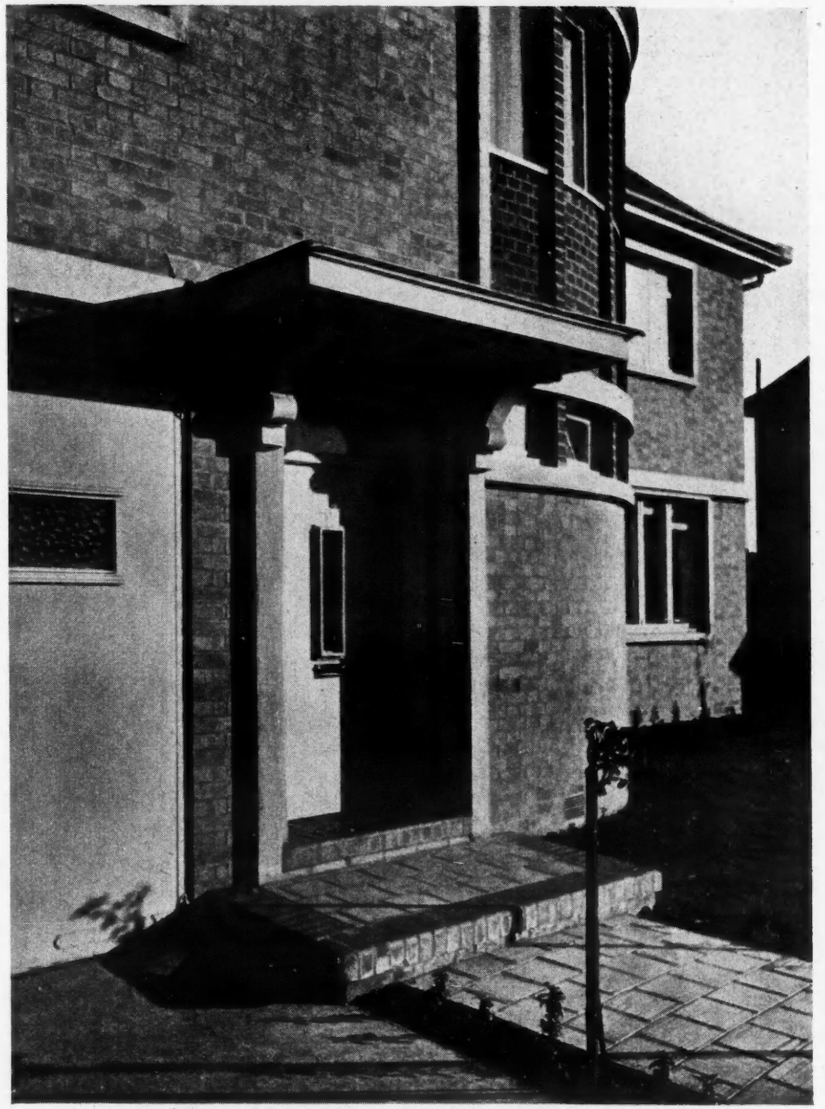
THESE two houses were built complementary to each other. The brickwork is a bright yellowish-grey colour with stone dressings around the windows. The staircase hall windows have an infilling of dark reddish brick. The back elevation to the south faces the garden, and has a balcony connecting all bedrooms, which have access by french windows. An arrangement of flower boxes in teak is embodied in the railings of this balcony. The garages flank the main entrances, and the upper floors contain a spacious and well-lit landing hall, three bedrooms and a maid's room and two bathrooms. On the ground floor the principal room is a lounge 23 ft. by 14 ft. 6 in., leading on to a terrace which forms a particularly pleasant feature of the design. The builders were Messrs. C. W. B. Simmonds, of Brondesbury, N.W.



PLANS OF NO. 23.



THE BALCONY, GARDEN FRONT, OF NO. 21.



THE MAIN ENTRANCE TO NO. 23.

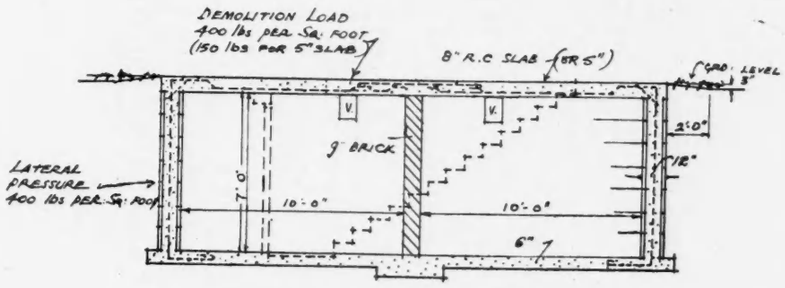
TWO HOUSES IN MANOR HOUSE DRIVE, BRONDESBURY PARK. MESSRS. CLYDE YOUNG, F.R.I.B.A., AND BERNARD ENGEL, ASSOCIATED ARCHITECTS.

SHELTERS FOR BLOCK DWELLINGS FOR THE LONDON COUNTY COUNCIL.

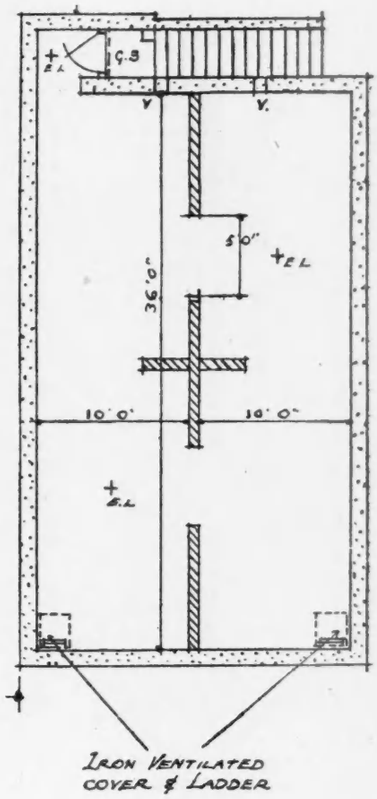
The London County Council has obtained Home Office approval to two types of air-raid shelters for blocks of flats constructed by the Council. Typical examples are given in the accompanying drawings.

Type A is wholly below ground and is covered with soil which may be turfed. This type is being constructed for block dwellings with grass forecourts. Each houses 100 persons, allowing 50 cu. ft. per person.

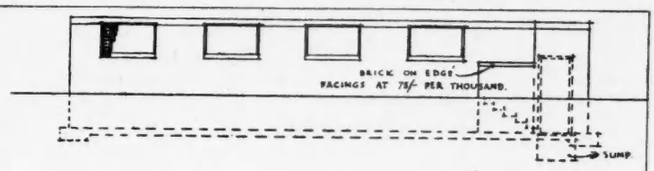
Type B is partly sunk below ground and can be used in peace time as a covered playground. It is suitable for blocks of flats with paved courtyards. It accommodates 72 persons, allowing 6 sq. ft. per person.



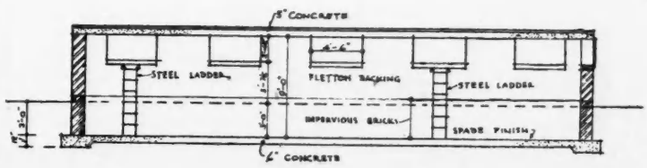
Type A Shelter.—CROSS SECTION.



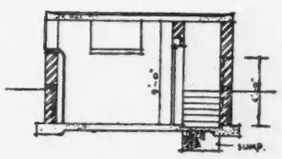
Type A Shelter.—PLAN.



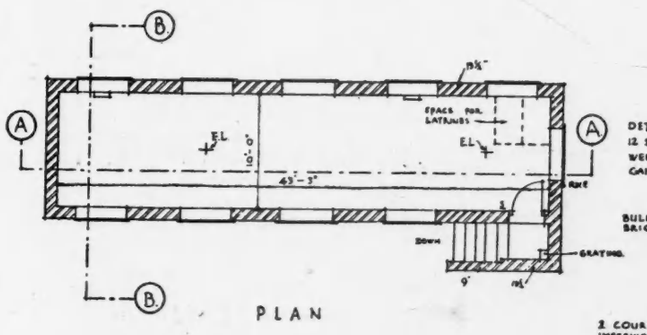
ENTRANCE ELEVATION



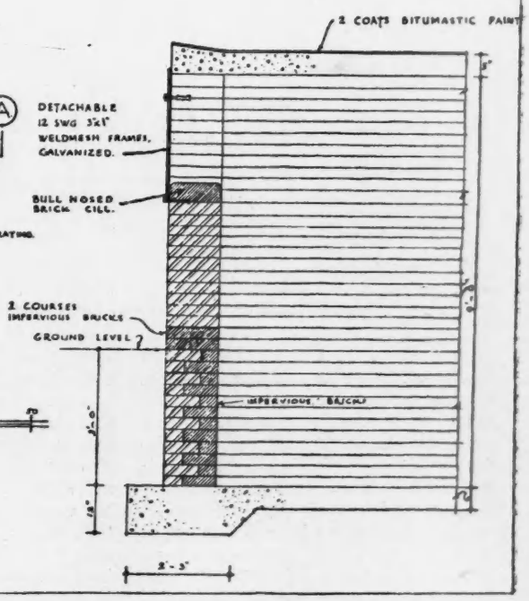
SECTION A. A



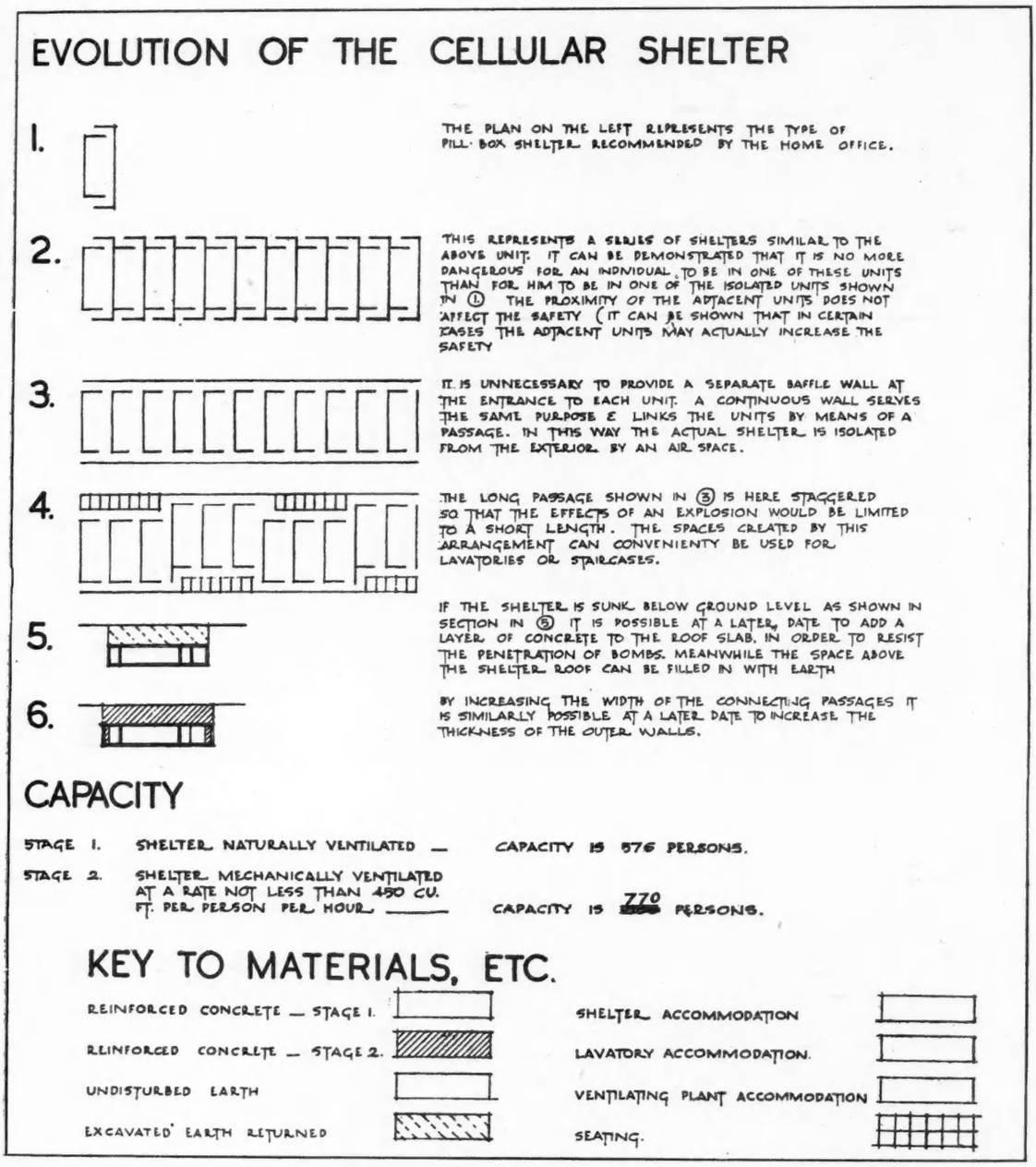
SECTION B B.



PLAN



Type B Shelter.—PARTLY BELOW GROUND. PLAN, SECTIONS AND DETAIL OF SECTION THROUGH WALL.


EVOLUTION OF THE CELLULAR SHELTER
1.
THE PLAN ON THE LEFT REPRESENTS THE TYPE OF PILL-BOX SHELTER RECOMMENDED BY THE HOME OFFICE.
2.
THIS REPRESENTS A SERIES OF SHELTERS SIMILAR TO THE ABOVE UNIT. IT CAN BE DEMONSTRATED THAT IT IS NO MORE DANGEROUS FOR AN INDIVIDUAL TO BE IN ONE OF THESE UNITS THAN FOR HIM TO BE IN ONE OF THE ISOLATED UNITS SHOWN IN (1). THE PROXIMITY OF THE ADJACENT UNITS DOES NOT AFFECT THE SAFETY (IT CAN BE SHOWN THAT IN CERTAIN CASES THE ADJACENT UNITS MAY ACTUALLY INCREASE THE SAFETY
3.
IT IS UNNECESSARY TO PROVIDE A SEPARATE BAFFLE WALL AT THE ENTRANCE TO EACH UNIT. A CONTINUOUS WALL SERVES THE SAME PURPOSE & LINKS THE UNITS BY MEANS OF A PASSAGE. IN THIS WAY THE ACTUAL SHELTER IS ISOLATED FROM THE EXTERIOR BY AN AIR SPACE.
4.
THE LONG PASSAGE SHOWN IN (3) IS HERE STAGGERED SO THAT THE EFFECTS OF AN EXPLOSION WOULD BE LIMITED TO A SHORT LENGTH. THE SPACES CREATED BY THIS ARRANGEMENT CAN CONVENIENTY BE USED FOR LAVATORIES OR STAIRCASES.
5.
IF THE SHELTER IS SUNK BELOW GROUND LEVEL AS SHOWN IN SECTION IN (5) IT IS POSSIBLE AT A LATER DATE TO ADD A LAYER OF CONCRETE TO THE ROOF SLAB, IN ORDER TO RESIST THE PENETRATION OF BOMBS. MEANWHILE THE SPACE ABOVE THE SHELTER ROOF CAN BE FILLED IN WITH EARTH
6.
BY INCREASING THE WIDTH OF THE CONNECTING PASSAGES IT IS SIMILARLY POSSIBLE AT A LATER DATE TO INCREASE THE THICKNESS OF THE OUTER WALLS.
CAPACITY
STAGE 1. SHELTER NATURALLY VENTILATED — CAPACITY IS 576 PERSONS.
STAGE 2. SHELTER MECHANICALLY VENTILATED AT A RATE NOT LESS THAN 450 CU. FT. PER PERSON PER HOUR — CAPACITY IS 770 PERSONS.
KEY TO MATERIALS, ETC.
REINFORCED CONCRETE — STAGE 1.
REINFORCED CONCRETE — STAGE 2.
UNDISTURBED EARTH
EXCAVATED EARTH RETURNED
SHELTER ACCOMMODATION
LAVATORY ACCOMMODATION.
VENTILATING PLANT ACCOMMODATION
SEATING.

A COMMUNAL AIR RAID SHELTER

A.R.P. CO-ORDINATING COMMITTEE'S DESIGN.

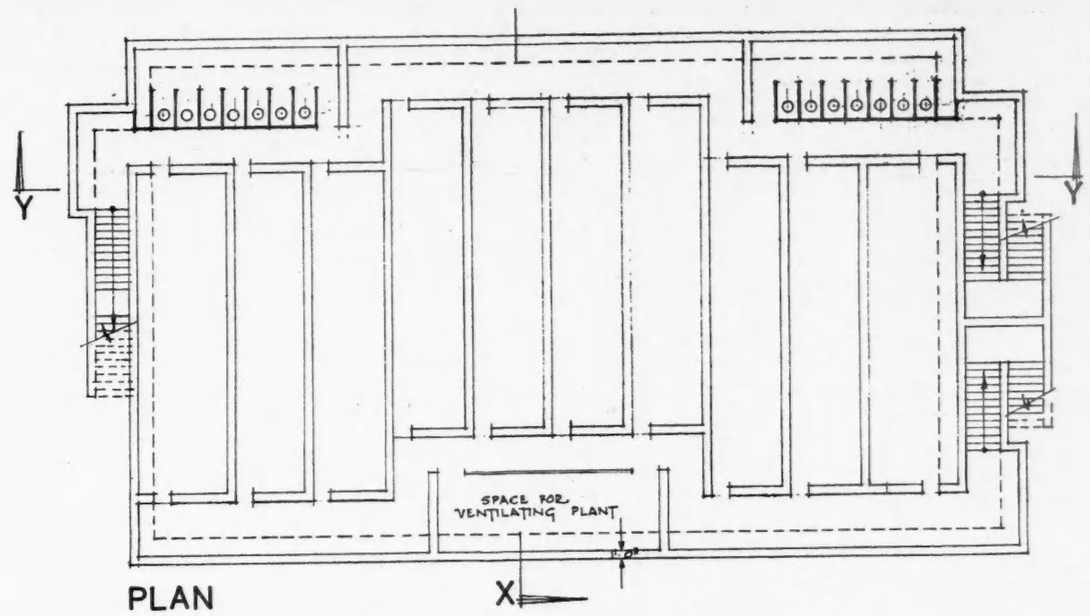
At the request of Sir John Anderson, Minister of Home Security, the A.R.P. Co-ordinating Committee, on December 14, submitted to him designs for communal air-raid shelters for the populations of large towns and cities. Sir John's request arises from the memorandum recently submitted to him by the Committee, in which they stated it to be their view that the first big raid would reveal the terrible inadequacy of the whole Government scheme, and that consequently a national scheme of heavily protected shelters should be begun.

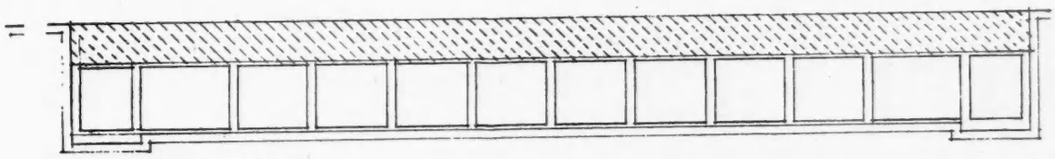
The design submitted is for a reinforced concrete shelter which can be constructed either above or below ground, and which is consequently suitable for both dry and waterlogged soils. In order to localise the effects from a bomb, the shelter is made up of compartments each containing from 50 to 80 persons, according as to whether artificial ventilation is provided. By varying the number of compartments, the shelter capacity can be adapted to local requirements. Seating, lighting and sanitary conveniences are provided.

A very important feature of the design is that the shelter can be constructed in two stages. In the first stage, it gives rather greater safety than the standard covered and lined trench, but it can subsequently, in the second stage, be more heavily protected so as to give any degree of protection desired.

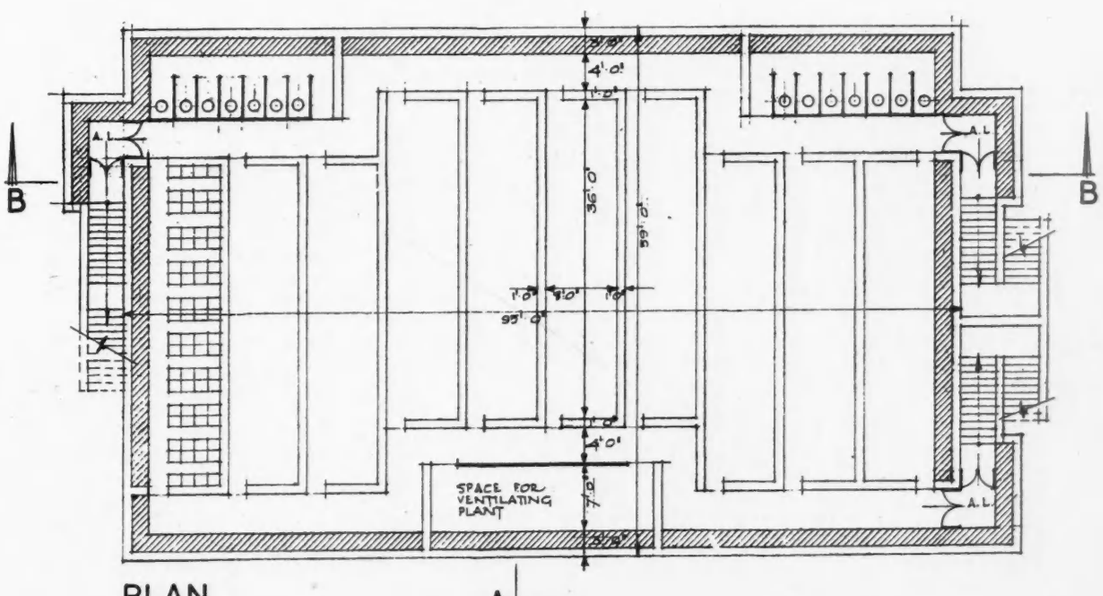
Thus is solved the problem of how an immediate programme of partial protection can be rapidly prosecuted so as to lay the basis for an ultimate programme of heavily protected shelters.

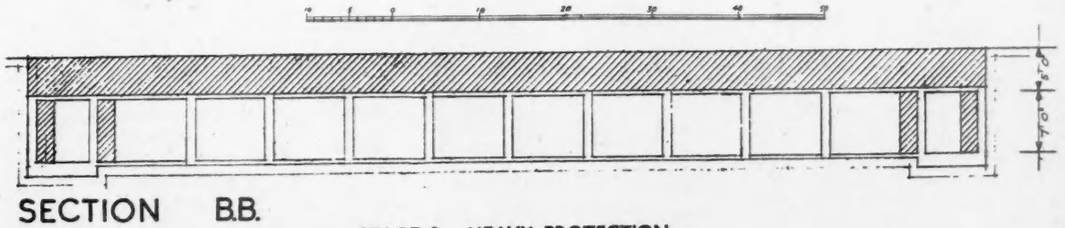
The full report is on page 854.





STAGE 1. BLAST AND SPLINTER PROOF PROTECTION.





STAGE 2. HEAVY PROTECTION.

A COMMUNAL AIR RAID SHELTER.

NOTES ON DESIGN.

The following is the full text of the material submitted to the Minister:—

In submitting the attached drawings we would offer the following observations.

We are convinced that the final solution of the problem of protection for the civil population in large towns and cities lies principally in the provision of heavily protected shelters. At the same time we are opposed to any slackening in the provision of partial protection.

The problem with which we are therefore faced is how a programme of partial protection can be rapidly prosecuted in such a manner as to lay the basis for a programme of heavily protected shelters, thus avoiding the enormous waste in time, material and labour which would result if the two programmes were not linked together.

The scheme we are now suggesting is an attempt to show how air-raid shelters of the "communal" (also known as "focal") type can be constructed in two stages. The type of shelter shown in the previously mentioned drawings has evolved from the trench, and in essence consists of a series of parallel units, either above or below ground, separated by walls of reinforced concrete. Two communicating corridors link up the units and also serve to protect the occupants from the effect of shock waves transmitted through the shelter walls.

It will be noted that in the accompanying design* a shelter below ground level is shown, and in these circumstances the corridors mentioned above, and also the stairways, serve to isolate the unit from shock waves transmitted through the surrounding earth. It may be considered that in relation to the thickness of the roof, the thickness of the outside walls, in the second stage is insufficient to resist the effects of a bomb exploding immediately alongside. While this is only incidental to the design, which could be varied without affecting the general principle, we consider that, with a given amount of material and up to a certain point, better protection is afforded by thickening the roof slab at the expense of the wall thickness. We believe this to be so because the probability that a bomb may fall immediately alongside the outer wall is very much less than that it may strike the roof.

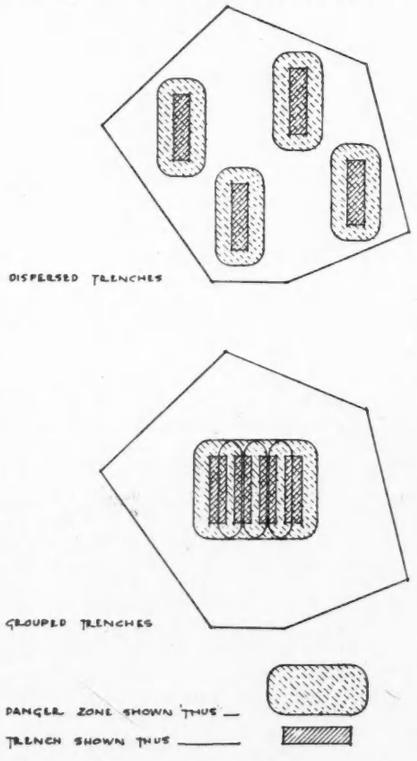
When the shelter is naturally ventilated it will, in accordance with the standards laid down by the Code, accommodate 576 persons. In arriving at this figure, the cubic capacity of the communicating corridors has been taken into account, although they are not intended to be occupied. This appears to us to be quite reasonable as the shelter units are not sealed off from the corridors.

By introducing mechanical ventilation, at a rate of 450 cubic feet per person per hour, it is possible materially to increase the capacity of the shelter, and at the same time to reduce the cost per head. The shelter would then accommodate 770 persons. In arriving at this figure, the floor area of the communicating corridors has not been taken into account, since to do so would yield a figure considerably beyond the seating capacity of the units. Seating capacity is provided for 720 persons, leaving 50 standing occupants.

We should emphasise that our attention has been mainly directed to the problem of planning rather than to the constructional details, and we lay no special claim to final authority in a field which is as yet still largely unexplored. For example, although a solid reinforced concrete roof is indicated in the second stage of the scheme, we do not rule out the possibility of other forms of roof construction. In view of this, and of the consequent need for elasticity in the design, we have not put forward a firm estimate of the cost. Shelters of a very similar design already constructed have cost about £6 per head for the first stage and without forced ventilation, but they involved less excavation, and we appreciate that, because of this, the cost of the scheme shown in the drawing will be rather higher. This, however, could be more than offset by the provision of forced ventilation. Furthermore, as has been previously stated, the type of shelter under discussion may equally well be above ground.

An objection which is frequently made to "communal" shelters is that a single bomb may cause hundreds, or even thousands, of casualties, and that therefore it is safer to have the people dispersed in small "family" shelters or in trenches which are widely separated one from the other. This objection is unfounded, as we shall demonstrate, but before doing this we propose to set out the factors which affect the safety of a person in shelter. First, there is the area of the shelter to be considered. The greater the area of the shelter (or a single unsubdivided compartment of a shelter) the greater is the likelihood of a bomb hitting it, or at any rate of its falling sufficiently close to do damage. Secondly, there is the resistance of the shelter itself to bombs—the strength of its roof, walls and floor.

We will now consider the case of a man sheltering in a trench. Any bomb of a given weight which falls in the trench itself, or within a certain distance from its walls, will probably kill him. The trench may be regarded, therefore, as surrounded by a "danger zone," bombs falling outside of which will do no damage. Now it does not matter whether the trenches are dispersed—being separated by the 25 to 40 ft. of earth as recommended in the Code—or whether they are grouped together as in the accompanying scheme. In either case, an occupant of the shelter can be certain that no bomb falling outside the danger zone can do him any harm. In other words, the safety of an occupant is not in the slightest diminished by the presence of an identical shelter alongside—provided always that the division wall between the two trenches offers a degree of lateral protection not less than that afforded by the surrounding earth in the case of an isolated trench. In other words, the "danger zone" of the trench is unaffected.



Now it is perfectly true that if a bomb falls on a shelter consisting of a group of trenches placed close together, as in our scheme, two, or even three, might be affected, with two or three times the casualties that would have resulted in the case of a hit on a single isolated trench. The point which is generally forgotten, however, is that the closer grouped trenches have a much smaller total "danger zone" (due to overlapping of "danger zones") than is the case with dispersed trenches [see diagram on this page], so that although a direct hit would cause a high number of casualties, this is balanced by the smaller chance of the trench being hit. If we compare a scheme of dispersed trenches with a scheme of grouped trenches, the probability is that the total casualties will be the same in each case—the only difference lies in the distribution of casualties. With dispersed trenches the probability is that many bombs out of the total dropped will each cause a few casualties, while with grouped trenches a few bombs out of the total dropped will each cause a large number of casualties.

It passing, it is interesting to note that, in some circumstances, the presence of a near-by trench may actually give a greater degree of protection, by providing an air space which will prevent transmission of shock waves in the earth.

So far, no claim has been made here for the superiority of grouped trenches—or of any other form of communal shelter, but we have established that, so far as the total number of casualties is concerned, there is nothing to choose between one system and the other, provided, of course, that the lateral and overhead protection is the same in each case. There are, however, many outstanding advantages possessed by communal shelters. In the first place, they are considerably more economical than dispersed shelters, and therefore a given expenditure per head will make possible a much higher standard of protection. Further, they are the only type which it is practicable to strengthen to resist direct hits. Coming to less fundamental, but still not inconsiderable, advantages, they can be readily provided with lighting, sanitary conveniences and furniture, and existence in them can be made reasonably comfortable, even in cold weather; whereas the "dispersed" type of shelter at present being provided is unsatisfactory in all these respects.

From the practical point of view, however, the point of overriding importance is this: in the most vulnerable areas, viz., the centres of large towns and cities, experience has shown that, for a large proportion of the population, it is not possible to provide any of the various

* See pages 852,853.

" dispersed " or " family " shelters. This is, in the main, due to lack of sufficient space immediately adjoining each house, although flooding and unsuitability of site generally are contributory factors.

A scheme of properly planned " communal " shelters can overcome all these difficulties. This renders it all the more important that sound designs for such shelters should be worked out and construction on a large scale immediately commenced in order that a significant proportion of the population shall not be left virtually unprotected.

REDUCTION OF NOISE IN BUILDINGS

A D.S.I.R. REPORT.

MANY interesting facts about noise in buildings are contained in a report just issued by the Department of Scientific and Industrial Research (" The Reduction of Noise in Buildings," Building Research Special Report No. 26, published by H.M. Stationery Office, price 1s. net). It is stated, for example, that four times as much sound can get through a ¼-in. crack round a wooden door 2 in. thick as can get through the door itself. A tight fit is equally important with windows, but the reduction of noise even with a tight-fitting closed window may not be enough, and where really good protection against noise is required it will often be necessary to use double windows and artificial ventilation. A double-framed window of ¼-in. glass with the sheets spaced 6 in. apart, surrounded by sound-absorbing tiles, has, however, been designed, which, when opened to provide ventilation, gives results which are as good as those obtained with a single window of the same glass when closed.

The report also contains much advice on the suppression of noise from machinery, sanitary fittings, lift gates, water taps and pipes, etc. The transmission of sound along water pipes can, for example, be reduced by inserting a short length of rubber tubing near the source of the noise. A few inches is enough to deal with a hiss, but a foot or two may be required to reduce lower-pitched sounds, such as those from circulating pumps.

The work described in the report has been carried out jointly by the National Physical Laboratory and the Building Research Station. The National Physical Laboratory has been solely responsible for the measurements, while the Building Research Station has erected many structures of the types suggested by these measurements and has tested them as nearly as possible under practical conditions. Although the work is not yet completed, certain broad principles have been established which should be of great assistance to architects and builders dealing with the problem of the reduction of noise.

The report recommends that the problem should be attacked along three lines : (1) by careful planning so that external and internal sources of noise are as far removed as possible from those parts of the building where quiet is most needed; (2) by suppressing or reducing internal noise, preferably at its source; (3) by providing a structure which will as far as possible prevent the transmission of noise from one part of the building to another.

" There is a tendency," the report continues, " to consider the structural question as the vital one, and to neglect the other approaches. This is wrong, for the desired degree of quiet is obtained most economically by giving equal consideration to all three of these aspects. Indeed, whilst the provision of a sound-insulating structure is often essential, the suppression of noise at the source and protective planning can reduce considerably the degree of structural insulation required, and therefore the cost of insulation. Moreover, it should be realised that in some cases the structural methods at present known are insufficient to provide adequate insulation even if the cost does not matter."

The Importance of Planning.

A number of diagrams are given which show how blocks of flats and other large buildings can be placed on urban sites so as to provide as much quiet as possible in the rooms. Similarly, some specimen plans of houses and flats illustrate how disturbance by internal noise can be reduced by careful arrangement of rooms used for various purposes.

The problem of designing so as to prevent the transmission of sound from one part of the building to another is very complex, because of the multiplicity of the kinds of sounds which have to be suppressed and the variety of the paths by which they can travel. For example, a man walking on a floor sets the floor in vibration, and this in turn generates in the air sound waves which reach the walker's ears as air-borne sound. Similarly, an air-borne sound wave is produced in the room immediately below. In addition, the floor vibrations travel laterally and are communicated to walls in contact with the floor and to the structure generally. Such structure-borne noise may travel a considerable distance with little attenuation, with the result that the noise of foosteps is heard in many rooms.

The report emphasises that sound reduction in a new building involves consideration of the whole structure at an early stage in the design. Floors, for example, cannot be considered without regard to the remainder of the construction with which they are associated.

When all the present evidence is reviewed, it appears that probably the only satisfactory way of preventing excessive transmission in large buildings will be to break the continuity of the structure, and it may even become necessary to construct units—such as complete flats—as separate boxes floating upon suitable insulation. Experiments on these lines are in progress and are promising.

Wireless.

Perhaps the most difficult problem of all is presented by the wireless set, which may be clearly audible through an 18-in. brick wall. Again, it has been found in experiments in a large reinforced concrete building that operating a loudspeaker in one room generated appreciable sound intensity, not only in the next room, but in rooms farther removed. In a room 50 ft. away the sound intensity was not much less than the intensity in the room next to the loudspeaker.

Failing a solution based on the design of the structure of the building, the only alternative suggested for reducing noises due to wireless in flats is the provision of a central receiver with relays to loudspeakers fixed in predetermined positions in each flat, thus enabling control to be exercised by the management over the maximum volume of output. The arrangement has the advantage of providing good reception to the tenants, whereas other electrical equipment and metal used in the construction of the building may cause serious interference with individual wireless sets operating with indoor aerials.

Walls and Floors.

With regard to the reduction of air-borne noises, the report states that there is a relationship between the weight of a single homogeneous wall and the average noise reduction given by it. The law governing this relationship, however, is such that small additions to the weight have less and less effect in reducing noise as the weight of the partition increases. Thus the sound reduction of a 4½-in, as compared with a 9-in. brick wall is 5 units, but it would be necessary to use an 18-in, wall to get an equal further reduction. It accordingly becomes uneconomical to rely solely on weight, and better results can be obtained by the use of double-wall construction, in which the two walls are isolated from each other. To obtain the best results it is also necessary to insulate the edges of each of the separate walls as far as possible from the surrounding structure. It is sometimes recommended that the cavity of a double partition should be filled with granular or other loose sound-absorbent. Such a filling, the report states, is most unlikely to give any improvement, because a filling will act as a bridge, and conduct vibration from one side of the wall to the other. Another recommendation on the value of which the report casts doubt is to hang a sheet or blanket of absorbent material loosely in the cavity.

In the case of floors, the sound reduction for air-borne noise given by concrete and wooden floors is about the same. With noises due to impacts, such as footsteps, the ordinary concrete floor is less noisy than a wooden floor, but neither type of floor is very satisfactory. A distinct improvement can be obtained by the use of floor coverings, such as pile carpets laid on thick underfelt, but the most effective solution so far obtained lies in the provision of a concrete floor insulated from the structural floor. Such a " floating " floor can be constructed in precast slabs, or it may be cast *in situ*. A form of construction has been developed at the Building Research Station whereby a floating floor may be cast *in situ* and raised after it has hardened. This method eliminates the possibility of a rigid bridge forming between the floating floor and the structural floor, and it has the additional advantage of enabling the rubber pads on which the floating floor is placed to be changed at a later date without disturbing the concrete. Some further improvement can also be obtained by the use of a floating ceiling below the structural floor.

The Architect's Problem.

The practical problem that the architect has to face, as a rule, is that of selecting a type of wall structure which will reduce a noise whose loudness is approximately known to a level which can be tolerated after transmission through the wall of a room. The report contains tables giving the general level of background noise which may be regarded as inoffensive in rooms used for various purposes. It also contains tables giving in phons the loudness of various indoor and outdoor sounds. The phon is now generally accepted as the unit for measuring the sensation of loudness. It is approximately the smallest loudness change which is detectable by ear under ordinary conditions. According to various experimenters a reduction of loudness of 10 phons is often assessed by an average person as " halving " the loudness of a sound, at any rate for sounds of medium pitch and loudness.

In certain cases, especially when it is desired to make a particular noise in a neighbouring room inaudible in the listener's room, advantage can be taken of the fact that the general background of noise in a room tends to drown or mask any intruding noises. Experiments have shown that this masking takes place with noises of medium loudness when the intruding noise is about 30 phons below the background noise. Thus, in an office where a background noise of 50 phons can be tolerated, a noise quieter than 20 phons (i.e., 50-30) would be practically inaudible. In other words, if a noise level of 75 phons were created in the room next door to such an office, the noise would be inaudible in the office if the reduction provided by the flanking walls and dividing partitions was 55 units (i.e., 75-20).

B.S. SPECIFICATIONS.

British Standards Institution has issued the following B.S. specifications : Construction of Road Traffic Signs (Cast Metal) and Posts (B.S. No. 873) and Definitions of Heat Insulating Terms and Methods of Determining Thermal Conductivity and Solar Reflectivity (B.S. No. 874). Copies of these specifications may be obtained from the British Standards Institution, Publications Dept., 28, Victoria-street, London, S.W.1, price 2s. each, 2s. 2d. post free.

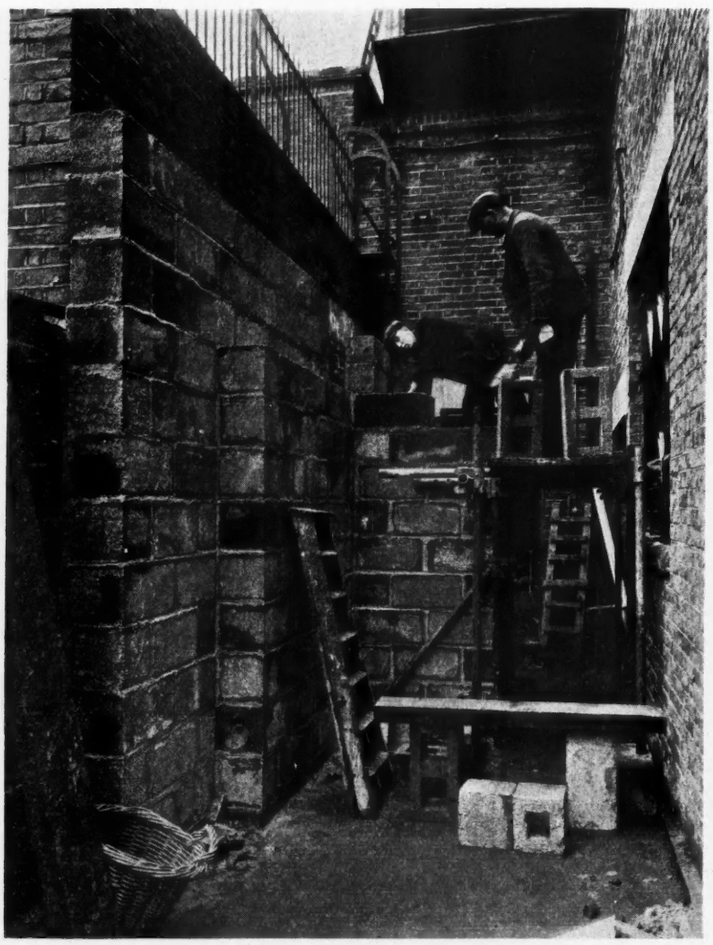
EMPLOYER AND SUB-CONTRACTORS: PAYMENTS DIRECT

By W. T. CRESWELL, K.C.

WHETHER or no an employer is under a liability to pay a sub-contractor direct depends on the terms of the contract between the employer and the general contractor. It is not unusual to find, in a general contract, provision for such direct payment by the employer. Where the general contractor fails for any reason to pay the sub-contractor, the employer may then deduct such payment from any sum outstanding and due to the general contractor. But most building and engineering contracts only make provision for the employer to pay direct to the sub-contractor where the architect has given a certificate to that end, and even then the words used are "may" (not *must*) pay on the architect's certificate. Under this type of contract, as distinct from the type named above, there always exists a risk for the employer if he pays the sub-contractor direct on such certificate. This is especially risky if the general contractor has committed an act of bankruptcy, or is in liquidation; for there is no privity of contract between an employer and a sub-contractor. For the same reason an employer cannot withhold any monies due to the general contractor for the purpose of paying them to the sub-contractor. (See *re* Holt *ex parte* Gray (1888), 58 L.J.Q.B. 5.)

If the general contractor for any reason has not paid to the sub-contractor the amount due to the latter, and already included in the architect's certificate, the architect has no authority to issue a separate certificate to the sub-contractor for the amount due to the latter; unless, of course, the general contract, when properly construed, gives him this right. In Milestone and Sons, Ltd., *v.* Yates Castle Brewery, Ltd. (1938), 2 All.E.R. 439, the brewery company contracted with Milestone and Sons, Ltd., to build an hotel, the form of contract used being that known as the 1909 Form. After the greater part of the work was done, Milestones went into liquidation. A considerable part of the contract price had been paid to Milestones, and some of the nominated sub-contractors had been partly paid. With the balance due to Milestones, the employer contended that he was entitled to pay the various nominated sub-contractors direct; the architect for the work having not only certified in favour of Milestones, and including therein sums due to sub-contractors, but later on given certificates in favour of the nominated sub-contractors. The employer relied on a term of the contract which stipulated that such sums should be paid to the sub-contractor by the general contractor, or by the employer, as the architect should direct. It was held that the certificates in favour of the sub-contractors were invalid, and that the term of the contract did not empower the employer to pay sub-contractors direct.

It may here be stated that some building and engineering contracts give an express power to the employer to require the dismissal of a sub-contractor, but such a power cannot thereby be implied in a sub-contract. Unless, therefore, the sub-contract contains a similar clause to that in the head contract conferring this power, and an employer does in fact dismiss a sub-contractor, then the latter may sue the general contractor for breach of contract or on a *quantum meruit*. (See Chandler Bros., Ltd., *v.* Boswell (1936), 3 All.E.R. 179 C.A.)



AN ALTERNATIVE TO SANDBAGGING.

Our illustration shows a wall of hollow concrete blocks being erected to protect the freezing plant at Purley Ice Rink. The cavities of the concrete blocks will be filled with sand or rubble. Standard size blocks (18 in. x 9 in. x 9 in.) were used. Messrs. James Smith & Sons (Norwood), Ltd., were the contractors, the blocks being manufactured and supplied by the Waddon Concrete and Building Material Co., Ltd.

EMERGENCY INQUIRY BUREAU

Questions from readers arising out of War-time difficulties and recent Emergency legislation will be answered by a special staff of contributors. Questions, which should be addressed to the Editor, should be accompanied by a stamped and addressed envelope.

Essential Buildings.

SIR,—*Is there any provision made for grading buildings* at the present time *into "essential" or non-essential classes? I am at present developing an industry connected with food canning, and have in mind extensions to my factory. As this will absorb much of my available capital, it is necessary that before I put the work in hand I should be assured that, in the event of the buildings being damaged by enemy action they would be regarded as "essential buildings" and obtain the benefit of the Essential Buildings Act.* J. B. C.

There is no such provision made under the Essential Buildings and Plant (Repair of War Damage) Act, 1939, which is designed to apply to "any building used for purposes which, in the opinion of the appropriate Minister, are essential to the welfare of the civil population," and "has become wholly or partly incapable of use for those purposes by reason of war damage."

We should imagine that the factory described would rank as an "essential building," but can only suggest that if a guarantee as to this is required our correspondent should write to the appropriate Minister—in this case the Minister of Food.

Building Contracts: Rise in Price Safeguard.

SIR,—*Can a cover clause be inserted in a contract to safeguard one against a rise in price of any material after the contract has been agreed upon?* H. C. K.

It is quite possible to put a clause in a contract as suggested, but as things are now the clause would need careful drafting by a lawyer. Certain bodies connected with the building industry have already had settled for them such a clause. The clause could not be made to cover materials controlled by the Government.

Department of Overseas Trade.

The Department of Overseas Trade has removed from 35, Old Queen-street, S.W.1, to New Public Offices, Great George-street, S.W.1, to which address all inquiries should now be sent. Telephone number remains Whitehall 9040.

WAR RISK INSURANCE

A NATIONAL INDEMNITY PLAN.

THE report was issued on Monday of the Joint Committee convened by the Association of British Chambers of Commerce to consider the report of the Weir Conference and the Government statement of policy on the demand for a national indemnity plan to cover war risk to property. A copy of the report has been sent to the Chancellor of the Exchequer with a request that the Government should reconsider the matter in the light of the views now expressed by the joint committee.

On the joint committee, whose views were issued yesterday, are representatives of many other national bodies, including the Federation of British Industries, the Chamber of Shipping of the United Kingdom, the National Chamber of Trade, the Law Society, the Corporation of Insurance Brokers, the Royal Institute of British Architects, the Auctioneers' and Estate Agents' Institute, and a number of friendly societies and property trusts.

The joint committee points out that the Weir Conference report admitted the "almost universal appeal for some scheme which will strengthen confidence and give an added feeling of security." The decision of the conference, however, had left the dissatisfaction unmitigated and the universal appeal unanswered. With many of the views expressed in that report the joint committee expresses agreement, but its unanimous conclusion is that a mutual indemnity scheme is essential to the restoration of confidence in the greatest of our national assets and that such a scheme is a practicable method of ensuring that the qualified and contingent assistance to be afforded by the State can be supplemented as may be necessary to ensure full compensation and to prevent any part of the burden of damage from resting where it may happen to fall. The undertakings given on behalf of the Government, the committee adds, "are contingent and without legal effect, afford no relief whatsoever during the continuance of hostilities, and any compensation thereunder must be indefinite both in amount and in point of time.

"To remove these defects it cannot be too clearly stated that the proposals now put forward attempt nothing more than to spread over the whole property-owning community a burden of damage that will fall upon that body in any event. In default of action in this sense the damage not compensated out of public funds must fall fortuitously and therefore unfairly, and this is the prime reason for the lack of confidence which is admittedly prevalent."

To meet the universal appeal for some scheme and to strengthen confidence and give adequate compensation, the committee considers that a scheme can be devised, and recommends that its broad outlines should be as follows :—

(*a*) There should be a Government scheme sanctioned by Parliament providing for full compensation for war damage to fixed property.

(*b*) The scheme should apply to all fixed property, be compulsory, and commence as early as possible.

(*c*) There should be a flat rate premium of 2s. per cent. payable annually during hostilities in respect of all properties irrespective of character, size, or location, on the amount for which the property is insured against fire.

(*d*) The premiums should be paid through approved insurance companies.

(*e*) The Government's present arangements for immediately ascertaining and assessing all damage should remain. Certificates of the assessed damage should cary an appropriate rate of interest to the date of payment.

(*f*) When hostilities cease and the total damage is ascertained, the Government should implement its pledge as set out in paragraph 5 of the Government's statement of policy. Only in so far as this may not be sufficient to meet the total loss should the balance be raised by post-war premiums at a rate not exceeding 10s. per cent. per annum for such a number of years as will suffice to ensure payment of compensation in full.

(*g*) The committee suggests that each owner should be exempted from post-war premiums in respect of the first £500 of the total value of properties in his ownership (not in respect of each separate property). The committee also considers that special consideration should be given to agricultural buildings.

(*h*) The post-war premiums should be a first charge on the property and should create no personal liability.

(*i*) Payment for the damage should be made as soon as possible after hostilities cease and might be made by the issue of negotiable Government bonds at an appropriate rate of interest in multiples of small denominations redeemable by annual drawings.

COMMODITY WAR INSURANCE.

An agreement on the war insurance of building materials has now been reached between the Board of Trade and the Distributors of Builders' Supplies Joint Committee on War Commodity Insurance. As from December 3 the rate of insurance will be ¼ per cent. per month. Full particulars may be obtained from the D.B.S.J.C., 225, Upper Thames-street, E.C.4.

IN PARLIAMENT

Town and Country Planning.

MR. D. ADAMS asked the Minister of Health how many schemes under the Town and Country Planning Act, 1932, were at present awaiting the approval of his Department, distinguishing between schemes in respect of which a local inquiry had already been held and those in respect of which such inquiry had not yet been held; and whether he could make any statement as to his general policy in relation to town and country planning in war time.

MR. ELLIOT said that the number of planning schemes now awaiting his approval was 219. Local inquiries had been held in respect of 131 of these schemes, and had not yet been held in respect of 88. With regard to the second part of the question, he had issued a circular to local authorities with regard to town and country planning in war time.

Loans for Rural Housing.

MR. DE LA BERE asked the Minister of Health whether he would take steps to extend special consent to the raising of loans in respect of houses in an advanced state of construction to make it permissive for the raising of loans to erect additional houses in rural areas, notwithstanding that building operations on these houses had not been already commenced, in view of the increase in the population in many rural districts as a direct result of the Government evacuation scheme.

MR. ELLIOT said he had already given instructions that proposals from rural areas for the completion of houses not in an advanced stage of construction, and also for the erection of new houses, should receive sympathetic consideration. In the latter case preference must be given to houses urgently required for the accommodation of agricultural workers and consideration of all proposals must take into account the availability of building materials.

Housing Progress.

MR. ELLIOT, Minister of Health, in a recent speech, referring to housing progress, said that many things had to be done. It was true that the building of houses by private enterprise had fallen away, but at present local authorities in England and Wales were engaged on the completion of more than 30,000 houses. That had only been made possible by close daily co-operation between the Departments concerned with building, the local authorities and the trade unions. He hoped they would be able to assist the local authorities to secure the materials necessary to enable them to complete at least the bulk of the houses which they had begun when war broke out.

Timber Supplies.

MR. GIBSON asked the Minister of Supply what steps he had taken, and what steps he was proposing to take, to make available the timber necessary to complete the houses under construction but whose completion had been delayed through lack of the necessary timber.

MR. BURGIN said that arrangements had been made for the grant of licences, subject to the issue of a certificate by the Ministry of Health in each case, for timber required for the completion of the largest possible number of houses under construction, having regard to the limited supplies of timber available for this purpose.

King Charles's Statue.

MR. LEONARD asked the First Commissioner of Works how many standards of timber and sheets of corrugated iron were used for the air-raid protection of the statue of King Charles in Whitehall; and the total cost of the work involved.

MR. RAMSBOTHAM said that two and three-quarter standards of timber and 140 sheets of corrugated iron were used for its protection and the total cost of the work was £320, of which nearly one-half was for labour.

Accumulations of Bricks.

MR. MARSHALL asked the Minister of Supply if he was aware that, owing to the suspension of house-building programmes, large stores of bricks were being accumulated, and that unless they could be used many employees in the brick-making industry would become unemployed; and if it was his intention, in view of the shortage of timber supplies, to see that this building material was used in the national interest, thereby ensuring the continuance of a home industry.

MR. BURGIN said he was informed that steps were being taken by the Departments primarily responsible for building programmes to ensure the use of bricks and other alternative materials in place of timber wherever possible.

Effects of Blast.

MR. PRITT asked the Home Secretary whether information would shortly be available about the results of further research into the problems mentioned in paragraph 62 of the Report of the Lord Privy Seal's conference of April last, Cmd. 6006, and particularly the problems of the effects of blast and the materials required for baffling it and protecting persons against its effects, and of the transmission of shock-waves through various materials; whether definite information was available on this problem of transmission when the thicknesses of wall and roof given in Handbook 5a were settled; and which of the two thicknesses of special reinforced concrete necessary to resist a one-ton bomb mentioned in Handbook 5, 6 ft. or 11 ft. was to be regarded as authoritative.

MR. MABANE said that the problems referred to in paragraph 62 of Cmd. 6006 had been the subject of constant research in the Research and Experiments branch of the Air Raid Precautions Department, who had the assistance of a number of distinguished scientists. The conclusions reached were reflected in the practical recommendations which were issued by the Department from time to time; but the Home Secretary did not consider it advisable now to publish further results.

B.C.G.A. New President.

ALDERMAN ERNEST GRIMSLEY, J.P., a former Lord Mayor of Leicester, has just been elected President of the British Commercial Gas Association for the coming year.

OBITUARY

John H. Jacques, F.R.I.B.A.

We regret to record the death of Mr. John Henry Jacques, F.R.I.B.A. For some years Mr. Jacques had been architect to the Leyton Education Committee. He was elected F.R.I.B.A. in 1928, and was in partnership with Mr. J. T. Newman.

Councillor Allanson, speaking at the last meeting of the Education Committee, said of Mr. Jacques that much of the progress of the educational system of the borough was due to his influence. He had not only designed several schools, but he was the architect for the new library, which would stand as a memorial to him.

Robert Robertson, F.R.I.B.A.

The death has taken place at Perth of Mr. Robert Robertson, F.R.I.B.A.

Mr. Robertson, who was 73, had been for nearly half a century on the architectural staff of the London County Council. He retired about six years ago. A native of Perth, he was educated at Perth Academy, and came to London to the London County Council. During the last war he was architect with the Ministry of Munitions, and resumed his County Council appointment at the end of the war. A keen musician, he specialised in pipe music, and was for a time pipe-major with the London Scottish. He arranged for the pipes many well-known musical pieces.

R. G. Wilson, F.R.I.B.A.

The death is announced of Mr. R. G. Wilson, F.R.I.B.A., of Aberdeen. Educated at the Aberdeen Grammar School, he received his early training with his father, the late R. G. Wilson, also gaining experience in Glasgow and in London. On his return to Aberdeen he became associated with his father and the late Mr. John W. Walker, the firm practising under the name of Wilsons and Walker, from which business he retired about six years ago.

Mr. Wilson was elected Associate R.I.B.A. in 1902, and Fellow in 1922. He had been a member of the Council, and was successively secretary and president of the local branch of the Institute.

ILLUMINATED AND NON-ILLUMINATED A.R.P. SIGNS

At the outbreak of hostilities local authorities erected as quickly as possible temporary signs indicating the position of public air raid shelters and other premises which are being used for A.R.P. work. The necessity for replacing these temporary signs with something of a more permanent character is all too apparent. In order to avoid the confusion that may result from local authorities adjacent to each other adopting different signs for one and the same purpose, the British Standards Institution, with the approval of the Home Office, has just issued Standard Specification in the BS/ARP series standardising the size, form and other details for these signs. The drafting of the standard has been undertaken under the ægis of a Joint Committee of the Illuminating Engineering Society and the Home Office (A.R.P. Department). Directional and location signs have been standardised for the following: Air raid shelter; report and control centre; cleansing depot; wardens' post; fire station; auxiliary fire station; fire alarm; hospital; first aid post; ambulance station; A.R.P. headquarters, and police station. Copies of the Standard BS/ARP 32, price 8d. each, post free, may be obtained from the offices of the British Standards Institution, 28, Victoria-street, S.W.1.

NEW BUILDINGS IN LONDON

DARTFORD.—DEPOT.—The T.C. has approved plans for a milk depot in Watling-street, for the Dartford Industrial Co-operative Society, Ltd.

LEWISHAM.—BUILDING.—The B.C. has accepted the tender of Messrs. Henry Kent (Builders), Ltd., for erection of the buildings at the depots for £3,900.

HERTFORD.—SHOP.—The T.C. has approved plans for an engineering shop for Messrs. Addis, Brush Works, Ware-road, Hertford. The building is to be erected by Messrs. Nissen Buildings, Ltd., Rye House, Hoddesdon.

MIDDLESEX.—BUILDINGS.—The C.C. recommended the tender of Messrs. John Harrison (London), Ltd., amounting to £7,770, for the erection of alternative accommodation for tuberculous patients at Central Middlesex County Hospital. Subject to the necessary loan sanction being granted by the M.H., the county architect is to invite tenders for adaptation of buildings for use as an approved school at Pishiobury Park, Sawbridgeworth, to replace Northcotts approved school.

MILL HILL.—HOSPITAL.—The L.C.C. have sanctioned expenditure of £2,465, subject to reimbursement by H.M. Government, for further adaptations in connection with the conversion of Mill Hill school into a neurological unit under the emergency hospital organisation.

POPLAR. — BUILDINGS. — The B.C. has approved the following schemes: — Hal Williams and Co., 43, Bedford-square, W.C.1, additions at Hope Chemical Works, Wallis-road, E.9; John Fraser and Son, Ltd., Millwall Boiler-works, Ferry-street, E.14, addition at boiler works, Ferry-street, E.14; J. and J. Dean, Ltd., Ruckholt-road, Leyton, E.10, building for Watts, Ltd., at Kelday-road, E.9; and Structural Engineering Co., Carpenters-road, E.15, extension at the premises of Messrs. Baldwin's, Orchard-place, E.14.

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GOVERNMENT HUTMENTS

THE USE OF CONCRETE.

LORD WOLMER, speaking on December 14 at an inspection of concrete hutments erected adjoining the Coombe Hill Golf Club, said that the cement industry had already played an important part in this war, and had managed to keep pace with the demands of the Government. There had, however, been serious complications at the outset owing to transport difficulties, but these had now all been surmounted and at the moment there was actually a surplus of cement, so that several cement kilns had been forced to close down, and there was a prospect of further kilns closing.

Lord Wolmer considered that it would be very unfortunate if this latter course became necessary from the point of view that if this country should experience a series of air attacks a great deal of reconstruction work would be necessary, and the cement industry would have to be called upon to provide cement at very short notice. The technical experts of the cement industry had given their minds to the problem of concrete hut construction. The result of their work could be seen in the various systems of hutting which had been erected. These had shown that concrete could provide definite types of hut which were in every way as complete as any hut which could be built of any other material. In addition, such huts could be erected just as cheaply as any other material, and, when once erected, there was the additional advantage that they were a great deal more permanent.

Lord Wolmer said he had a complaint to make against certain Government departments. The point had been made that the conduct of economic warfare was not merely a question of outside trade and activity; it was also very much a question of internal economy. And yet the great spending departments—the War Office, Office of Works, Admiralty, Air Ministry, etc.—were too prone to use the old materials with which they had had experience, in many cases, timber, and were using their power with the Timber Control to induce them to release for their departmental purposes vast quantities of timber which had to be imported at the expense of British tonnage and British exchange; and all the time huts could be erected in concrete just as cheaply and just as quickly from material this country produced.

TRADE NEWS

Obscuration of Factory Lighting.

By a strange irony, firms of window manufacturers who have devoted their attention to developing the value of daylight and making buildings lighter and more airy are now faced with the problem of reversing these principles. Under present conditions all buildings, particularly factories, have to be made light-proof, and a new set of conditions has arisen.

These problems have faced the Crittall Manufacturing Co., Ltd., who state that they have already noticed the results of working in continual artificial light—diminished output, increase of accidents, and a general effect of depression in the workshops. Along with other manufacturers they have been working out various methods whereby a reduced but welcome and effective means of daylight may be employed which, without interfering with the general scheme of camouflage, can be easily and quickly operated in case of air raid alarm. The type of shuttering must, of course, depend upon the particular type of window or roof, but the resources of Messrs. Crittall's technical staff and mechanical equipment, combined with their experience, enable them to design and carry out the efficient obscuration of any and every type of building. These principles are outlined in a book of working details which, in conjunction with the details given, should interest every architect and works manager. A copy is obtainable from the company, 210, High Holborn, W.C.1.

A.R.P. SCHEMES

ALDERLEY EDGE.—U.D.C. are to provide shelters for 300 persons.

BLACKPOOL.—B.E. and S. to erect on land at junction of Lytham-road and Dean-street two steel shelters. B.E. and S. to proceed with steel shelter surrounded with clay or earth to hold 50 persons on small shrubbery in front of St. John's Market, and also provide accommodation for 200 persons in conveniences provided in conjuction with the Talbot-road omnibus station; accommodation for 150 persons in basement under St. John's Market, and 6 steel shelters, to accommodate 50 persons each, on the site bounded by Church-street, Corporation-street, Market-street and West-street. Plans passed for Mr. Hancock, 536, Queen's-drive.

BURSCOUGH.—U.D.C. proposes shelters in War Memorial-street, Victoria Park, junction of Pippin and High-lane, Warpers Moss.

CHELSEA.—B.C. received L.C.C. approval to £600 for use of part of Carlyle school as a depot and cleansing station.

CHESTER.—City Council recommend 9 covered trench shelters for the use of children attending Westminster-road school, Hoole, at rear of block F, P.A. institution; £500 for strengthening and protection of wardens' posts, etc.; provision of a cleansing station and first-aid post at the Public Assistance Institution, and cleansing station at Chester Royal Infirmary, at £247 and £452, and borrowing of £962 in connection with construction and equipment of Boughton rescue and demolition party depot.

CHESTERFIELD. — Home Office approved scheme for alteration of the borough police headquarters for decontamination centre, etc., at £6,000. W. S. Wilson, B.S., and J. B. Cutts, Saltergate, joint architects.

CORBY. — U.D.C. placed contracts with Tailby and Sons, 20, Station-road, Desborough, at £515, for shelters in Kelvin-grove, and J. Streather and Son, Sunnyside, Corby, at £109, for conversion of Rockingham-road reservoir into shelters. Plans by D. W. Greaves, S.

DARFIELD.—H. Field and Sons, Stairfoot, Barnsley, contractors for five public shelters, for U.D.C.

DUKINFIELD.—U.D.C. proposes conversion of part of technical school into first-aid post and Barton Villa for auxiliary fire brigade.

FOLKESTONE.—Plans approved for air raid precautions cleansing station, Bradstone-avenue; precautions cleansing station, Old Council Offices, Cheriton High-street, for Corporation.

GLASGOW.—Plans for shelters at High-street. The Trongate and Bell-street. Plans by the City Engineer. Cost £3,570. Shelters for the Commercial College of Glasgow. Plans by J. Taylor, Thomson and Partner, 212, Bath-street, for shelters.

GREENWICH.—For an air raid precautions cleansing station at the Tunnel-avenue depot the B.C. has engaged Messrs. Harris and Porter, 3, Robert-street, Adelphi, W.C.2, to prepare the quantities.

HAMPSTEAD. — Messrs. W. and C. French, Ltd., Buckhurst Hill, are erecting a control and report centre, document store, for the Town Hall adjoining Belsize-avenue, at £10,723.

HASLINGDEN.—T.C. decided, subject to approval of the C.C. and the Home Office, to erect 12 brick air raid shelters, giving a total accommodation for 450 persons, and that the basements of 13 existing buildings be strengthened so as to provide shelter for 1,390 persons.

HEMEL HEMPSTEAD.—T.C. has approved plans for first-aid station and shelters, Apsley Mills, for John Dickinson and Co., Ltd.

HINDLEY.—U.D.C. to seek £2,600 loan sanction for 26 shelters at council schools. O. P. Abbott, S.

HOUGHTON-LE-SPRING. — U.D.C. received sanction for 158 surface shelters, to cost £3,192, and have prepared plans for 300 more shelters, at about £4,700.

HUCKNALL.—For domestic surface air raid shelters, tender of George Cooper (Builders, Nottingham), Ltd., 50, Main-street, Bulwell, Nottingham, accepted at £263 by U.D.C. H. M. Aitchison, S.

HULL.—T.C. proposes school shelters in neutral areas, at £32,800.

KIDDERMINSTER.—E.C. proposes air raid protection trench in brickwork for 50 at Howley Park school.

LANCASTER.—Nicholson and Wright, Ltd., at £1,184, T. Johnson, Ltd., at £467, R. L. Dilworth, Ltd., at £492, F. Kelly, at £608, Nicholson and Wright, Ltd., at £293, W. and I. Peill, at £356, and R. L. Dilworth, Ltd., at £181, all of Lancaster, are contractors for trenches and shelters. Shelters are to be provided at Ryelands Torrisholme-road and Morecambe-road, Milking-Stile-road, Giant Axe Field; Quay Meadow; Scotland-road; Bowerham-road; 42, Parliament-street and Tramway Hotel; "King's Arms" Hotel and Greaves Hotel, and Richmond House.

LEEDS.—For decontamination stations for police, T.C. accepted tenders as follows: Oxford-street, A. Wilson, £1,522, and Green Hill-road, Bramley, R. M. Thompson, Ltd., £1,212.

LEICESTER. — Reliable Roads (Shepshed), Ltd., 30, Chernwood-road, Shepshed, Leicester, contractors for concrete (in situ) shelters under car park in Charles-st., for T.C. A. T. Gooseman, City E.

LEIGH.—Leigh Spinners, Ltd., Hall House-lane, proposes shelters, Manchester-road. Bradshaw Gass and Hope, architects, 19, Silverwell-street, Bolton.

LERWICK.—T.C. has decided to submit to the Shetland C.C. a scheme for a number of shelters.

LONGBENTON. — U.D.C. to erect by direct labour domestic surface shelters in backyards.

MANCHESTER.—Marsden and Chapman, Bedford-drive, Timperley, Altrincham, are contractors for permanent brick shelters in Albert-street, Newton Heath, for T.C.

MELTON MOWBRAY.—U.D.C. proposes shelters for 1,700 persons.

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MOTHERWELL. — Corporation has approved shelters at approximately £25,000. The architect is A. Victor Wilson, Housing Director's Office, Merry-street.

NEWCASTLE.—City Council is preparing plans for domestic shelters of brick and concrete for about 40,000 houses. P. Parr, City E. Council is to make extensions to Jesmond A.R.P. report centre by direct labour. Cost over £3,000.

NEWCASTLE-UNDER-LYME. — F. C. Gibson, Ltd., Basford, Stoke-on-Trent, at £130 each, H. Stubbs, Newcastle, at £134 each, and G. Scott and Sons, Newcastle, at £138 each, are the contractors for surface brickwork shelters for elementary schools. Mr. A. Cotton, Schools' Architect. T.C. to make application to M.H. for borrowing £7,660 in connection with shelters for schools.

NORTHUMBERLAND.—E.C. decided to build three more shelters at Bedlington School, and two each at Seaton Valley, Backworth and Earsdon schools. Plans by County Architect, Morpeth.

OSSETT.—T.C. to seek £16,000 for school shelters.

ROCHDALE. — E.C. propose shelters at Norden, St. Gabriel's, Oaken-road, Derby-street, St. Alban's, Healey, St. Edwards, Conkeyshaw, All Saints', Balderstones schools.

ROTHERHAM.—T.C. proposes adaptation of Main-street baths for cleansing station, and shelters at Wellgate, St. Ann's-road, Thornhill, etc., at £12,000.

SHEFFIELD. — W. Gunstone and Sons, Ltd., Broad-street, Sheffield, contractors for shelter at South-street, near Broad-street. Banner Cross Methodist Church Trustees propose shelter, Glenalmond-road.

SOUTHPORT.—E.C. proposes shelters, Farnborough-road, for 500, at £225; Windy Harbour-road, for 500, at £340; Bury-road, for 200, at £350; Crossens Norwood-road and Cavendish House, Wood Vale, schools, for 308, at £195.

SOUTH SHIELDS.—T.C. applied to M.H. for sanction to borrow £40,000 for civil defence works. T.C. is to build further shelters at St. Gregory's, Mortimer-road, and Mowbray-road. schools.

STANLEY.—U.D.C. submitted to Government plans for domestic surface shelters.

STAVELEY.—C. H. Hill and Sons, Victoria-street, Mansfield, at £1,125, are contractors for seven surface and semi-surface shelters for U.D.C.

THURROCK.—Plans for proposed A.R.P. depot at Manor-road, Tilbury, at £4,500, have been forwarded for the approval of the Essex C.C. by U.D.C.

WALLSEND.—T.C. to proceed with first instalment of 341 domestic shelters in backyards, at £7,457. J. H. James, High-street East, has been selected to carry out part of the work, and another three or four builders will be engaged later. Plans by J. A. Blench, B.E. B.E. is preparing plans for improvements to first-aid posts at Richardson Dees and the Western council schools.

WARRINGTON. — R.D.C. proposes shelters for 25 persons opposite "Cuerdley Arms" Hotel, Penketh. T.C. approved: Decontamination unit and drainage to shelter, Lythgoes-lane, Lyants Co., Ltd.; shelter and first-aid depot, Howley-lane, J. and W. N. Hutchings, Ltd.; shelters, Tanners-lane, Regals and Whitley Sand Co., Ltd., Howle, Seagull and Silcock, Turner Bros. and W. Silcock.

WEMBLEY.—T.C. approved plans for following shelters: De Havillands Co., Ltd., Stag-lane; Campbell Symonds, Wembley Park-drive; Raglan Property Trust, Kingscourt, Forty-lane.

WEST RIDING.—E.C. proposes shelters for Featherstone C. of E. School, Morley-place school, Conisborough, Darfield C. of E. school, Dolcliffe-road school, Mexborough, church hall school, Swinton, Park-road school, Wath, Ellis M.P. infants' school, Brampton Brierlow, and Birdwell C. of E. school.

WHITBY. — U.D.C. approved plans for A.R.P., first-aid and cleansing station in Falcon-terrace, for North Riding C.C.

WIGAN. — E.C. to erect 14 additional shelters at council schools, at £4,300.

WORKINGTON.—R. W. Copeland, 28, Nook-street, Workington, contractors for shelter at Gas Works, for T.C.

CONTRACTS OPEN

For some contracts still open, but not included in this list, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender, that a fair wages clause shall be observed, that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender, unless stated to the contrary. The dates at the head of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained. Abbreviations: (A) for A.R.I.B.A.; B. of E. for Board of Education; B.C. for Borough Council; B.E. for Borough Engineer; B.S. for Borough Surveyor; C. for Clerk; C.B. for County Borough; C.C. for County Council; C.E. for County Engineer; C.S. for County Surveyor; D.S. for District Surveyor; E. for Engineer; E.C. for Education Committee; (F.) for F.R.I.B.A.; (L.) for L.R.I.B.A; M.W.B. for Metropolitan Water Board; M.H. for Ministry of Health; M.T. for Ministry of Transport; P.C. for Parish Council; R.D.C. for Rural District Council; S. for Surveyor; T.C. for Town Clerk and Town Council; and U.D.C. for Urban District Council.

BUILDING.

DECEMBER 23.

Sheffield T.C.—Domestic surface shelters in various parts of Sheffield. R. Nicholas, City E. and S. Dep. £3.

Solihull U.D.C. — Temporary mortuary building in wood construction, adjoining chapel, Robin Hood cemetery, Streetsbrook-rd., Shirley. C. R. Hutchinson, E. and S.

Workington Infirmary.—Extension. Oldfield, Simpson and Saul, architects, National Provincial Bank-chambs., Workington. Dep. £2 2s.

DECEMBER 26.

Crayford U.D.C. — Four underground public shelters at Crayford-rd. (2) and Station-rd. (2), each to accommodate 50 persons, and 22 surface domestic shelters of brick and concrete construction. S.

Near Treharris (Glam).—Certain work at South Wales and Monmouthshire Industrial school. Johnson, Richards and Rees, architects, Glebeland House, Merthyr Tydfil.

DECEMBER 27.

Loughborough T.C.—Extension of switchboard annexe at electricity generating station, Bridge-st. W. Granger, B.S. Dep. £1 1s.

DECEMBER 28.

Newcastle-upon-Tyne Corporation. — 20 brick and concrete air raid shelters in domestic backyards in various streets. City E.

DECEMBER 29.

Dublin Corporation.—Converting firemen's quarters at Tara-st. fire station into offices, stores, lecture room, etc. City Architect, 1-3, Parliament-st.

Limerick Corporation.—366 houses at Killeely. C. Stenson, B.E., City E. Dep. £10.

Musselburgh (H.M.O.W.).—Hutted hospital annexes at Ministry of Pension Hospital, Edenhall. Architect, H.M.O.W., 122, George-st., Edinburgh, 2. Dep. £1.

DECEMBER 30.

Beckenham T.C.—Rest-room and dormitories at depot "A," adjoining the Technical Institute, Beckenham-rd. B.E. and S. Dep. £2.

Dorking U.D.C.—Adaptation of part of existing swimming bath into cleansing centre. S. S. Gettings, E. and S. Dep. £2 2s.

Durham C.C.—Public air raid shelters in Rural Districts of Sedgefield and Stockton, and Urban Districts of Brandon and Byshottles, Bishop Auckland and Spennymoor. Wm. J. Merrett, C.E. and S., 43, Old Elvet, Durham.

JANUARY 1.

Brentford and Chiswick T.C.—50-person surface and semi-trench brick shelters. L. A. Cooper (L.), B.E. and S. Dep. £2 2s.

JANUARY 4.

Barry T.C.—Air raid surface shelters and basement protective works at elementary schools. E. R. Hinchsliff, F.S.I., Borough Engineer's Office. Dep. £1 1s.

JANUARY 6.

Hemel Hempstead R.D.C.—Fire station at Kings Langley. B. Ll. Stephenson, S., 2, Marlowes. Dep. £2 2s.

JANUARY 8.

***Hayes and Harlington U.D.C.**—Control and report centre adjoining town hall. E. and S. Dep. £3 3s.

JANUARY 9.

Near Denbigh.—Alterations to kitchen in North Wales Sanatorium for King Edward VII Welsh National Memorial Assn. T. Taliesin Rees and Richard Holt, chartered architects, 64, Rodney-st., Liverpool, 1. Dep. £2 2s.

JANUARY 16.

South Africa.—Electric lighting power station and distribution network for Loxton Municipality, Cape Province, Dept. of Overseas Trade, Gt. George-st., S.W.1. (Ref. T.Y. 29657/39.)

PAINTING, ELECTRIC LIGHTI NG, HEATING, &c.

DECEMBER 27.

Newcastle-upon-Tyne Corporation. — Interior painting and cleaning of St. Mary Magdalene Home, Spital Tongues. City Estate and Property Surveyor.

Newcastle-upon-Tyne Corporation.—Rubber flooring to corridors at St. Mary Magdalene Home, Spital Tongues. City Estate and Property Surveyor.

DECEMBER 28.

Barnsley T.C.—Provision and installation of low-pressure hot-water apparatus and steam boiler and other heating and steam-raising plant, and for alterations to existing plant and buildings at St. Helen Hospital and Institution. F. J. H. Wilson, consulting engineer, 26, Park-row, Leeds, 1.

JANUARY 1.

Erith T.C.—Wiring of lighting and water heating points, and extension to fire alarm system at Bedonwell Hill school extension, Belvedere. Electrical Engineer and Manager, "Electricity House," Pier-rd.

JANUARY 3.

Chester (H.M.O.W.). — Installation of heating and hot water apparatus at telephone exchange, John-st. Mr. Hasse, H.M. Office of Works, Marine Hydro, Rhyl, Flints. Dep. £1.

JANUARY 10.

Teddington (H.M.O.W.).—Installation of cast iron grid floor in heavy laboratory at Admiralty Research Laboratory. Room 71, Ground Floor, H.M.O.W., London, S.W.1. Dep. £1.

MATERIALS, &c.

DECEMBER 30.

Enniskillen U.D.C.—Broken stones and stone chippings. J. Donnelly, B.S.

JANUARY 3.

Isle of Ely C.C.—Highway materials, C.S., March.

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London Office:
23, Lawrence Lane, Cheapside, London, E.C.2

All Classes of Insurance Transacted

(Except Life and Marine)

The Leading Office for

Contract Guarantee Bonds

Perth and Kinross C.C.—Road materials. T. B. Marshall, County Clerk, York-pl., Perth.

JANUARY 4.

Mold U.D.C.—Timbers, roofing materials, tarpaulins. E. T. Williams, S.

JANUARY 6.

Bexley T.C.—Highway materials. B.E. and S.

JANUARY 10.

Shipley U.D.C.—500 tons of Portland cement. H. Dawson, S.

ENGINEERING, IRON AND STEEL.

DECEMBER 23.

Tiverton T.C.—Laying and jointing of about 2,000 yds. of 8-in. dia. asbestos cement pipes and ancillary works near Tiverton, and construction of intake and pump house and ancillary works at Bolham, near Tiverton. N. G. Elliot, chartered civil engineer, Torquay. Dep. £1 1s. each.

DECEMBER 30.

Leeds T.C.—Electric goods lift. F. Nicholls, City Electrical Engineer, 1, Whitehall-rd.

JANUARY 1.

Brixham U.D.C.—Removing damaged pile at Pier Head, replacing it with new pile, and other incidental work. S.

JANUARY 5.

Ripon T.C.—900 lin. yds. of 9-in. dia. salt-glazed ware pipe sewers, together with manholes and ancillary works; also 1,300 lin. yds. of 7-in. dia. spun-iron socket pipes, and small brick pumping station, in parishes of Ripon and Sharow. Silcock and Simpson, engineers, 10, Park-row, Leeds, 1.

JANUARY 9.

New Zealand Public Works Dept.—Steelwork for Hangatiki sub-station. Secretary, Public Works Supplies and Tenders Committee, Government-bldgs., Wellington.

JANUARY 15.

South African Railways and Harbours Stores Department.—Bridgework. Sec. to Tender Board, Headquarter Offices, Room 420, Johannesburg.

ROAD, SEWERAGE AND WATER WORKS.

DECEMBER 23.

Aireborough U.D.C.—Making up of part of Moorland-cres., Guiseley. S., Micklefield House, Rawdon, near Leeds. Dep. £2 2s.

JANUARY 1.

Gloucestershire C.C.—Improvement works in Mortimer-rd, Filton; Walls Court-rd., South Filton, and Cleve-rd., Filton. C.S., Gloucester. Dep. £2 2s.

JANUARY 3.

Scotland.—Supplying and laying about 880 lin. yds. of 3-in., 2-in. and 1½-in. asbestos cement pressure pipes; constructing reinforced concrete storage tank and relative works; and supplying and laying about 620 lin. yds. of 3-in. dia. spun iron water mains at Middleton, Gorebridge, Widlothian, for Scottish Special Housing Assn., Ltd. Parker, Gordon and Ogilvie, engineers, 3, Palmerston-pl., Edinburgh, 12.

JANUARY 4.

Leeds T.C.—Kerbing, flagging, tar paving footpaths and carriageways in Roxholme-av., Roxholme-rd., Roxholme-pl., Parkwood-rd., Parkwood-av., Parkwood-dr., and kerbing, tar paving footpaths and carriageways in Scott Hall, Brooklands. Highways Engineer, 155, Kirkstall-rd. Dep. £1 1s.

Manchester T.C. — Sewering, draining, kerbing, flagging (artificial), and paving (tarred macadam) of Dene-rd., Didsbury, from Wilmslow-rd. to point approximately 160 yds. distant in westerly direction, and Wilmslow-rd. improvement, Didsbury, at junction with Dene-rd. City Engineer's Office, Southern District Surveyor's Department, Town Hall. Dep. £2 2s.

Public Appointments.

DECEMBER 28.

Camberwell B.C. — Sewers Engineer. Darrell Musker, T.C.

***Wigan Corporation.** — Waterworks Plumber. B. and Water E.

DECEMBER 30.

***Peterborough T.C.**—Architectural Assistant. A. J. Reeves, T.C.

Walsall C.B.—Repairs Supervisor. A. E. Bywater, Housing Manager.

CURRENT AND PROPOSED BUILDING WORK*

Bacup.—T.C. received sanction of M.H. to complete 24 houses at Thorn Estate.

Berwick.—T.C. to apply for M.H. sanction to proceed immediately with repairs to damaged Spittal Promenade at £3,873.

Blackpool.—T.C. to sell Government land in Mowbray-dr. for post-office engineering garage and stores.—Plans passed: Revd. Ward, All Hallows-rd., memorial hall.—Approval given to amended density plan received from Beardshaw and Co., in connection with proposed development of land, junction of St. Annes-rd. and Endsleigh-gdns.

Bournemouth.—Finance Committee recommended approval of recommendation of E.C. that scheme for enlargement of Municipal College be proceeded with. Cost, £65,000.

Carlisle.—M.H. given permission to T.C. for completion of 134 houses on certain Corporation estates.

Chelsea.—B.C. approved: 227-233, Fulham-rd., showrooms and offices; 68-69, Royal Hospital-rd., alterations; 74-108, Old Church-st., and 20-25, South-parade, 12 houses; Watney, Combe, Reid and Co., Ltd., drainage business premises, 533, King's-rd.

Cheshire.—E.C. proposes completion of Harrytown-la. senior school, Brebury; junior and infants' school, Poynton; alterations to senior school, Kingsley and Newton; senior school, Helsby. F. Anstead Browne (F.), County Architect, The Castle, Chester.

Chester.—T.C. to spend £195 on exterior decorations of Dee House Ursuline convent school. — Plans passed:—Warehouse goods depot, Northgate Station, Elders and Fyffes, Ltd.; additions to Western Works, Rustroof Metal Window Co.

Chesterfield. — T.C. approved: — Factory, Lordsmill-st., for British Electrical Repairs, Ltd.

Corby.—U.D.C. seeking sanction to proceed with development of Oakley-rd. housing estate for 100 houses.

Coventry.—T.C. received sanction of M.H. to complete 170 houses Pinley Fields estate and 316 on Charter estate. A. F. Underhill (L.), Housing Director.

Coventry.—T.C. approved: Factory, office block, etc., Browns-la., for Daimler Co., Ltd.; garage and extension, Swanswell-ter., Coventry and Warwickshire Hospital Saturday Fund Committee; extension to premises, Lower Ford-st., British Thomson Houston Co., Ltd.

Croydon.—C.B. recommended completion of carcase of new central office and showroom building.—£900 to be spent on female lavatory accommodation for town hall staff.—Plans passed: Borough Valuer, 71, Park-la., garage and storage bays, rear of 79, Coldharbour-rd., Waddon.

Dolgelley.—R.D.C. received £3,846 loan sanction for Llanegryn housing scheme.

Farnham.—U.D.C. approved:—Factory extensions, West-st. Cripps Construction Co., for Sound Sales, Ltd.

Gateshead.—Hetherington and Wilson, 52, Westgate-rd., Newcastle-on-Tyne, prepared plans for hotel, Park-rd., for James Deuchar, Ltd., Newcastle. — North-Eastern Trading Estates, Ltd., to erect a factory (F.99) at Kingsway, Team Valley estate. Plans by Tasker and Child, Trinity-bldgs., New Bridge-st., Newcastle-on-Tyne.—Premises to be built in Hawks-rd., for Northern Butchers Hide and Skin Co., Ltd. Architects, Arthur and Kirkup, 13, Swinburne-st., Gateshead.—North-Eastern Housing Assn., Newcastle-on-Tyne applying to M.H. for sanction to complete 136 houses at Blue Quarries and at Highfield.

Hampstead.—B.C. received of Electricity Commissioners, sanction to borrowing of £1,000 for building work, fire protection equipment, etc., at the council's electricity undertaking.

Hemel Hempstead.—T.C. approved:—Offices at "Braeside," Felden-la., for J. W. Thompson and Co., Ltd.

Hereford. — T.C. approved: — Proposed offices, flats and garages, Bath-st., F. Lewis-Smith per C. E. T. Booth; extension to 'bus garage, Friar-st., Birmingham and Midland Motor Omnibus Co., Ltd.; alterations and additions to offices, engineering works, Mortimer-rd., Painter Bros., Ltd., per Nicholson and Scriven.

Hoylake.—Higson's Brewery, Ltd., Dale-st., Liverpool, propose hotel adjoining Arrowe Brook, Greasby-rd. W. M. and M. W. Shennan, architects, 15, Hamilton-sq., Birkenhead.

Jarrow.—Ferry Committee sent four sets of plans to M.T. and B. of T. with regard to proposed new pontoons and bridges for Jarrow-Howdon ferry landings. J. Scott Weir, B.E., prepared plans. Total cost £1,300.

Kensington.—B.C. recommend concrete floors at Bramley-rd. flats being covered with bituminous preparation to preserve structures so far built, at £150.

Lewisham.—B.C. recommend accommodation and building works in connection with installation of ventilating and filtration plants at various depot buildings, at £476.—Plans passed:—Bromley Hill Garage, Ltd., shelter at Bromley Hill Garage, Bromley Hill; O. Faber, factory at Messrs. Elliott Bros. premises, Thurston-road.

London (City).—Corporation recommend widening Wood-st., in front of Nos. 3 and 3a, at £24,325.

Middlesex.—C.C. to make application to M.H. for consent to borrowing:—Structural alterations to Chase Farm, Enfield, £2,277; Pishiobury Park, revised scheme for the adaptation of buildings, Sawbridgeworth, £3,500. County Architect to carry out alterations to existing sanitary offices and to provide two additional w.c.s at Willesden technical college, at £115.

4-443A

Newcastle-under-Lyme.—T.C. approved extensions to Roman Catholic Guildhall, Knutton-rd., Wolstanton, for Rev. T. V. Bagnall, P.P. Church of Sacred Heart and St. Wulstan, Dimsdale Parade.

Nuneaton.—T.C. approved: Jas. Eadie Ltd., new stores, house and shop, Ventnor-st. and Knightsbridge-rd.; G. Hardy, garage extension, paint shop, Coton carriage works, Heath End-rd.; J. Hepworth and Son, Ltd., rebuilding of shop premises, 4, Abbey-st.

Romford.—T.C. to invite fresh tenders for painting of certain iron railings to parks.

Ruislip-Northwood.—U.D.C. approved:—School room, the Gospel Hall, West Way, Ruislip, trustees of Gospel Hall, West Way; factory extension, Victoria-rd., Ruislip, Air Control Installations, Ltd.

Sheffield.—Ogden and Raine, architects, 63, Norfolk-st., preparing plans for proposed alterations to works in Victoria-st.—Don Battery Co., 31, Proctor-pl., Hillsborough, prepared plans for office, messroom and battery extension in Hawksley-av. and Proctor-pl.

Sheffield. — T.C. approved: Additions, Corby-st., Thos. Firth and John Brown, Ltd.; packing and despatch rooms, Cowlishaw-rd., G. Jowitt and Sons; bakery extension, Lowther-rd. and Penistone-rd., G. H. Fletcher and Son, Ltd.; church hall, Chaucer-cl., Rev. Father R. R. Roseveare; locker and messrooms, Brightside-la., English Steel Corporation, Ltd.; 45 houses, Walkley-la., Hammerton-rd. and new street, Simpson Bros. (Sheffield), Ltd.; 30 houses, Highcliffe-dr., Ackroyd and Abbott; alterations, Victoria-st., Ogden and Raine; machine shop, Eadon-rd. and Leeds-rd., Brown Bayleys Steel Works, Ltd.; offices, Mowbray-st., John Bedford and Sons, Ltd.; saleshop alterations, Abbeydale-rd. South and Bushey Wood-rd., R. Orme and Co., Ltd.; 64 houses, Lathkill-rd., Lowburn-rd. and Masefield-rd., Moorhouse and Brind; factory addition, Penistone-rd., Siskol Machines, Ltd.

Shrewsbury.—Governors of Royal Salop Infirmary to complete new hospital dispensary and County Pathological laboratory. Architects, Shayler and Dilks, Dana-chmbs., Castle-gates.

Southport.—L.M.S. railway proposes reconstruction of Churchtown Station railway bridge over Cambridge-rd.

Stokesley.—R.D.C. received M.H. consent to build a fire station at £2,100. Tenders about to be invited.

Sunbury.—Food Controller submitted to C.C. plans and estimates for conversion of old stables at Council offices into cleansing station, and for mess and bunk room accommodation.

Uttoxeter.—R.D.C. received approval of M.H. for 26 houses at Rocester—R.D.C. proposes 36 houses at Abbots Bromley, Blithfield, Roston, Kingstone, etc.

Wandsworth.—B.C. approved conversion of Congregational church hall, Streatham High-road, into stretcher party depot, at £195.—Applications approved to develop: Point Pleasant, Southfields, garage and offices, Nos 11-31; Portinscale-road, Putney—development of property known as No. 21 by 10 detached houses with garages; Wandsworth-road and Cedars-road, Clapham North—cinema.

Wembley.—T.C. to inform M.H. that Council are anxious to proceed with number of sewer schemes.

Workington. — T.C. approved additions to convent at Park End-rd. for Society of the Poor Clares. Architect, T. Nicholson, 37, Washington-st.

Worthing.—T.C. approved: S. Walter, for Baptist Church, hall, Hillview-rd.

York.—T.C. propose conversion of "Red Lion" hotel, Mieklegate, to fire station. Plans by City E.

NEW CINEMA.

OLDHAM, LANCS.—Messrs. A. Pellowe and Sons, Chamber-road, Oldham, have secured the contract for alterations and improvements to the Victoria Cinema, for the T.C. The architect is Mr. H. A. Yearsley, L.R.I.B.A., 7, Oxford-street, Manchester.

* See also List of Contracts Open.

*** **In these lists every care is taken to ensure that information given is accurate and up to date, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced.**

RATES OF WAGES IN THE BUILDING TRADE

AS AND FROM 1st DECEMBER, 1939

[Every endeavour is made to ensure accuracy, but we cannot be responsible for errors]

	Crafts-men.	Lab-ourers.
Aberavon	1/8	1/3½
Aberdare	1/8	1/3½
Abergavenny	1/7½	1/2½
Abingdon	1/6½	1/2
Accrington	1/8	1/3½
Aldeburgh	1/4½	1/0½
Aldershot	1/6½	1/2
Alfreton	1/8	1/3½
Alnwick	1/7½	1/2½
Altrincham	1/8	1/3½
Amble	1/7½	1/2½
Amersham	1/6½	1/2
Ammanford	1/8	1/3½
Andover	1/6	1/1½
Ardingley	1/6	1/1½
Arundel	1/6	1/1½
Ascot	1/6	1/1½
Ashby-de-la-Zouch	1/6½	1/2
Ashford (Kent)	1/6	1/1½
Ashford (Middlesex)	1/8	1/3½
Ashington	1/7½	1/2½
Ashtead	1/8	1/3½
Ashton-under-Lyne	1/8	1/3½
Aylesbury	1/6	1/1½
Aylsham	1/5	1/1
Bagshot	1/6	1/1½
Banbury	1/6	1/1½
Barnsley	1/8	1/3½
Barnstaple	1/6	1/1½
Barrow-in-Furness	1/8	1/3½
Barry	1/8	1/3½
Basingstoke	1/6	1/1½
Bath	1/7½	1/2½
Batley	1/8	1/3½
Beaconsfield	1/6½	1/2
Beccles	1/4½	1/0½
Bedford	1/7½	1/2½
Berkhamsted	1/6	1/1½
Berwick	1/7½	1/2½
Beverley	1/8	1/3¼
Bexhill-on-Sea	1/6½	1/2
Bideford	1/6	1/1½
Biggleswade	1/5½	1/1½
Billericay	1/5½	1/1½
Birchington	1/6	1/1¾
Birkenhead	‡§1/10	¶
Birmingham	1/8	1/3½
Bishop Auckland	1/8	1/3½
Bishops Stortford	1/7	1/2½
Blackburn	1/8	1/3½
Blackpool	1/8	1/3½
Blyth	1/8	1/3½
Bognor Regis	1/6	1/1½
Bolton	1/8	1/3¼
Bournemouth	1/7	1/2½
Bracknell	1/6	1/1½
Bradford	1/8	1/3½
Bradford-on Avon	1/5*	1/1
Braintree	1/6	1/1½
Brentwood	1/7½	1/2½
Bridgwater	1/6½	1/2
Bridlington	1/7½	1/2½
Brighouse	1/8	1/3½
Brighton	1/7	1/2½
Bristol	1/8	1/3½
Broadstairs	1/6	1/1½
Bromsgrove	1/7½	1/2½
Buckley	1/8	1/3½
Bungay	1/4	1/0½
Burnham-on-Crouch	1/4½	1/0½
Burnley	1/8	1/3½
Burslem	1/8	1/3½
Burton-on-Trent	1/8	1/3½
Bury	1/8	1/3½
Bury St. Edmunds	1/5½	1/1½
Buxton	1/7½	1/2½
Byfleet	1/6½	1/2
Cambridge	1/7½	1/2½
Canterbury	1/6	1/1½
Cardiff	1/8	1/3¼
Carlisle	1/8	1/3¼
Carnforth	1/8	1/3½
Castleford	1/8	1/3½
Caterham	1/8	1/3¼
Chard	1/5*	1/1
Chatham	1/7	1/2½
Chelmsford	1/7½	1/2½
Cheltenham	1/7	1/2½
Chepstow	1/7	1/2½
Chertsey	1/7	1/2½
Chester	1/8	1/3½
Chesterfield	1/8	1/3½
Chichester	1/6	1/1½
Chorley	1/8	1/3¼
Cirencester	1/5½*	1/1½
Clacton	1/6	1/1½
Cleveleys	1/8	1/3½
Clitheroe	1/8	1/3½
Cobham (Surrey)	1/7	1/2½
Colchester	1/7½	1/2½
Colwyn Bay	1/7	1/2½
Congleton	1/7½	1/2½
Coventry	1/8	1/3¼
Cranbrook	1/6	1/1½
Cranleigh	1/6	1/1¾
Crawley	1/6	1/1½
Crewe	1/7½	1/2½
Cromer	1/5	1/1
Crowborough	1/6	1/1½
Cuckfield	1/6	1/1½
Darlington	1/8	1/3½
Darwen	1/8	1/3½
Daventry	1/6½	1/2
Deal	1/6	1/1½
Denbigh	1/6½	1/2
Derby	1/8	1/3½
Devizes	1/4½*	1/0½
Dewsbury	1/8	1/3¼
Didcot	1/6	1/1½
Diss	1/4½	1/0½
Doncaster	1/8	1/3¼
Dorchester	1/5½*	1/1¼
Dorking	1/6½	1/2
Dover	1/6	1/1½
Dovercourt	1/6	1/1½
Driffield	1/6½	1/2
Droitwich	1/7½	1/2½
Dudley	1/8	1/3½
Dunstable	1/6½	1/2
Durham City	1/8	1/3½
Eastbourne	1/7	1/2½
E. Glam. (Mon. Val.)	1/8	1/3½
East Grinstead	1/6	1/1½
Edenbridge	1/6	1/1½
Ely	1/4½	1/0½
Epping	1/8	1/3½
Exeter	1/7½†	1/2½
Exmouth	1/6½	1/2
Fakenham	1/5	1/1
Falmouth	1/6½	1/2
Fareham	1/7	1/2½
Faversham	1/6	1/1½
Felixstowe	1/7	1/2½
Filey	1/6½	1/2
Fleetwood	1/8	1/3½
Flint	1/8	1/3½
Folkestone	1/6	1/1½
Frinton-on-Sea	1/6	1/1½
Frome	1/5*	1/1
Gainsborough	1/7	1/2½
Gateshead	1/8	1/3½
Gillingham (Kent)	1/7	1/2½
Glossop	1/8	1/3½
Gloucester	1/7½†	1/2½
Godalming	1/6	1/1½
Goole	1/8	1/3½
Gosport	1/7½	1/2½
Grantham	1/7	1/2½
Gravesend	1/7½	1/2½
Great Yarmouth	1/6	1/1½
Grimsby	1/8	1/3½
Guildford	1/6	1/1½
Guilsborough	1/6½	1/2
Halifax	1/8	1/3½
Hanley	1/8	1/3½
Harpenden	1/7	1/2½
Harrogate	1/8	1/3½
Hartlepools	1/8	1/3½
Harwich	1/6	1/1½
Haslemere	1/6	1/1½
Hastings	1/6	1/1½
Hatfield	1/7½	1/2½
Haywards Heath	1/6	1/1½
Hednesford	1/7½	1/2½
Hemel Hempstead	1/7	1/2½
Henley-on-Thames	1/6	1/1½
Hereford	1/6*	1/1½
Herne Bay	1/6	1/1½
Hertford	1/7½	1/2½
Heysham	1/8	1/3½
Hitchin	1/6½	1/2
Hoddesdon	1/7½	1/2½
Holt (Norfolk)	1/4½	1/0½
Horley	1/6	1/1½
Horsham	1/6	1/1½
Horwich	1/8	1/3½
Huddersfield	1/8	1/3½
Hull	1/8	1/3½
Hunstanton	1/5	1/1
Huntingdon	1/5½	1/1½
Ilfracombe	1/6	1/1½
Ingatestone	1/6½	1/2
Ipswich	1/7½	1/2½
Isle of Thanet	1/6	1/1½
Isle of Wight	1/5	1/1
Keighley	1/8	1/3½
Kenilworth	1/8	1/3½
Kettering	1/7½	1/2½
Kidderminster	1/7½	1/2½
King's Lynn	1/6	1/1½
Kirkham	1/8	1/3½
Knowle	1/7½	1/2½
Lancaster	1/8	1/3½
Leamington	1/8	1/3½
Leatherhead	1/7	1/2½
Leeds	1/8	1/3½
Leicester	1/8	1/3½
Leighton Buzzard	1/5	1/1
Letchworth	1/6½	1/2
Lewes	1/6	1/1½
Lichfield	1/7	1/2½
Lincoln	1/8	1/3½
Littlehampton	1/6	1/1½
Liverpool	‡§1/10	¶
Llandudno	1/7	1/2½
Llanelly	1/8	1/3½
London—		
12 m. radius	1/9½*	1/4½
12-15 m. radius	1/9 *	1/4
Long Eaton	1/8	1/3½
Longton	1/8	1/3½
Loughborough	1/8	1/3½
Louth	1/6½	1/2
Lowestoft	1/6	1/1½
Luton	1/7½	1/2½
Macclesfield	1/7½	1/2½
Maidenhead	1/6½	1/2
Maidstone	1/6½	1/2
Malvern	1/6½	1/2
Manchester	1/8	1/3¼
Manningtree	1/5	1/1
Mansfield	1/8	1/3½
March	1/5	1/1
Margate	1/6	1/1½
Market Harborough	1/7	1/2½
Matlock	1/6½	1/2
Melton Constable	1/4½	1/0½
Melton Mowbray	1/7	1/2½
Merthyr	1/8	1/3½
Middlesbrough	1/8	1/3½
Middleton	1/8	1/3½
Middlewich	1/7½	1/2½
Milford Haven	1/6½	1/2
Morecambe	1/8	1/3½
Morley	1/8	1/3½
Mundesley	1/5	1/1
Nantwich	1/7½	1/2½
Nelson	1/8	1/3½
Newark-on-Trent	1/7½	1/2½
Newbury	1/6	1/1½
Newcastle-on-Tyne	1/8	1/3½
Newcastle-u.-Lyme	1/8	1/3½
New Forest	1/5	1/1
Newmarket	1/6	1/1½
Newport, Mon.	1/8	1/3½
Newport Pagnell	1/6	1/1½
Northampton	1/8	1/3½
Norwich	1/8	1/3½
Nottingham	1/8	1/3½
Nuneaton	1/8	1/3½
Oakham	1/6½	1/2
Oldham	1/8	1/3½
Ormskirk	1/8	1/3½
Oxford	1/7½	1/2½
Oxted	1/6½	1/2
Paignton	1/7½	1/2½
Peterborough	1/7½	1/2½
Plymouth	1/8	1/3½
Pontefract	1/8	1/3½
Pontypridd	1/8	1/3½
Port Talbot	1/8	1/3½
Portsmouth	1/7½	1/2½
Preston	1/8	1/3½
Pulborough	1/6	1/1½
Ramsgate	1/6	1/1½
Reading	1/7½	1/2½
Redditch (Northern)	1/7	1/2½
Redhill	1/6½	1/2
Ripon	1/6½	1/2
Rochdale	1/8	1/3½
Rochester	1/7	1/2½
Rugby	1/8	1/3½
Saffron Walden	1/5	1/1
St. Albans	1/7½	1/2½
St. Helens	1/8	1/3½
St. Neots	1/5	1/1
Salisbury City	1/5*	1/1
Salisbury Plain	1/7*	1/2½
Sawbridgeworth	1/6½	1/2
Saxmundham	1/4½	1/0½
Scarborough	1/7½	1/2½
Scunthorpe	1/8	1/3½
Selby	1/8	1/3½
Sevenoaks	1/6½	1/2
Sheerness	1/5½	1/1½
Sheffield	1/8	1/3½
Shipley	1/8	1/3½
Shoeburyness	1/7½	1/2½
Shoreham	1/7	1/2½
Shrewsbury	1/7	1/2½
Sittingbourne	1/6	1/1½
Skegness	1/7	1/2½
Sleaford	1/6½	1/2
Slough	1/7	1/2½
Southampton	1/7½	1/2½
Southend-on-Sea	1/7½	1/2½
Southport	1/8	1/3½
South Shields	1/8	1/3½
Spalding	1/6	1/1½
Stafford	1/7½	1/2½
Staines	1/7	1/2½
Stamford	1/7	1/2½
Stevenage	1/6½	1/2
Stockport	1/8	1/3½
Stockton-on-Tees	1/8	1/3½
Stoke-on-Trent	1/8	1/3½
Stourbridge	1/7½	1/2½
Stourport	1/7½	1/2½
Stowmarket	1/5	1/1
Stratford-on-Avon	1/7	1/2½
Stroud	1/6½†	1/2
Sunderland	1/8	1/3½
Sutton Coldfield	1/8	1/3½
Swaffham	1/4½	1/0½
Swanage	1/6*	1/1½
Swansea	1/8	1/3½
Swindon	1/6½*	1/2
Tamworth	1/7½	1/2½
Taunton	1/6	1/1½
Tenterden	1/6	1/1½
Thames Haven	1/8	1/3½
Thetford	1/5½	1/1½
Thorpe Bay	1/7½	1/2½
Todmorden	1/8	1/3½
Tonbridge	1/6½	1/2
Torquay	1/7½	1/2½
Totnes	1/6	1/1½
Trowbridge	1/5*	1/1
Truro	1/5	1/1
Tunbridge Wells	1/6½	1/2
Uppingham	1/6½	1/2
Uttoxeter	1/6½	1/2
Wakefield	1/8	1/3½
Walsall	1/8	1/3½
Walsden	1/8	1/3½
Walton-on-Naze	1/6	1/1½
Ware	1/7½	1/2½
Warminster	1/5*	1/1
Warrington	1/8	1/3½
Warwick	1/8	1/3½
Wellingborough	1/7½	1/2½
Welwyn	1/7	1/2½
Welwyn Gar. City	1/8	1/3½
Wells (Norfolk)	1/4½	1/0½
West Bromwich	1/8	1/3½
Westcliff-on-Sea	1/7½	1/2½
Weston-super-Mare	1/7	1/2½
Weybridge	1/7	1/2½
Weymouth	1/5½*	1/1½
Whitby	1/7	1/2½
Whitstable	1/6	1/1½
Widnes	1/8	1/3½
Wigan	1/8	1/3½
Wigton	1/6½	1/2
Willington	1/7½	1/2½
Wilmslow	1/8	1/3½
Winchester	1/6½	1/2
Windermere	1/6½	1/2
Windsor	1/7	1/2½
Wisbech	1/5½	1/1½
Witham	1/6	1/1½
Woking	1/6½	1/2
Wokingham	1/6	1/1½
Wolverhampton	1/8	1/3½
Woodbridge	1/5½	1/1½
Worcester	1/7½	1/2½
Workington	1/6½	1/2
Worksop	1/7½	1/2½
Worthing	1/6	1/1½
Wrexham	1/7½	1/2½
Wroxham	1/5½	1/1½
Wycombe	1/6½	1/2
Wymondham	1/5	1/1
Yeovil	1/6½	1/2
York	1/8	1/3½

* Painters 1d. less than other Craftsmen. † Painters ½d. less than other Craftsmen. ‡ Plasterers 1/10½.

¶ Tradesman's Labourers 1/4½ Navvies and General Labourers, 1/4.

§ Joiners, Plumbers, Bricklayers, Tilers and Masons receive 2/- per week or 4d. per day Tool Money.

For Building Trade Wages in Scotland, see page 864.

PRICES CURRENT OF MATERIALS*

Note: Owing to the exceptional circumstances which prevail at the present time prices of materials should be confirmed by inquiry.
The softwood prices are the maxima established by the Timber Control Department.
At present linseed oil and genuine spirits of turpentine can only be supplied in cans in small quantities.
Lead can only be obtained for Government or A.R.P. work and urgent repairs.

BRICKS, &c.

Delivered to site, City and Central Area, Full Lorry Loads. £ s. d.
Best Stocks 4 15 0
Second Hard Stocks 4 8 0

Per 1,000. Delivered at London Goods Stations.

2½ in. Phorpres.	King's Cross Station. per 1,000. s. d.	To sites in W.C. District. per 1,000. s. d.
Pressed bricks	46 3	50 6
Cellular bricks	46 3	50 6
Keyed bricks	48 3	52 6
Cellular Keyed bricks	48 3	52 6
Rustic bricks	*66 3	*70 6
Cellular Rustic bricks	*66 3	*70 6
Single Bullnose	64 3	68 6
White bricks	*66 3	*70 6
Sandfaced bricks	—	75 6

* Subject to a special discount of 2s. per 1,000 ft. accompanied by order for Pressed.

	£ s. d.
White Midhurst Facing Bricks (delivered London site)	3 12 6
Best blue Pressed Staffs	8 6 6
Do. Bullnose	8 16 6
Blue Wire Cuts	7 4 0

Best Stourbridge Fire Brick :—
2½ in. ..... 7 15 0 3 in. 8 15 0

GLAZED BRICKS—

Best White Ivory and Salt Glazed Stretcher	24 0 0	D'ble Str'tch'rs	32 10 0
		D'ble Headers	29 10 0
Headers	23 10 0	One side & two ends	33 10 0
Quoins, Bullnose and 4½in. Flats	30 10 0	Two sides & one end Splays and Squints	34 10 0 31 0 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours. Hard Glaze, £5 10s. extra over white.

PARTITION SLABS.

Delivered London Area.

"PHORPRES" HOLLOW PARTITION BLOCKS.

2" per yd. sup.	2 3	3" per yd. sup.	2 9
2½" " "	2 6	4" " "	3 1

CLINKER CONCRETE.

2" per yd. sup.	1 6	3" per yd. sup.	2 0
2½" " "	1 8	4" " "	2 4

CRANHAM TERRA COTTA.

2" per yd. sup.	3 0	3" per yd. sup.	3 8
2½" " "	3 6	4" " "	4 7

HEMPSTEAD—KEYED TWO SIDES.

12" x 9" x 2"	2 6	12" x 9" x 3"	3 0
12" x 9" x 2½"	2 9	12" x 9" x 4"	3 9

SAND.

Per yard super d/d. Free on site, London.

Thames Ballast	7 9	per yd.
Pit Ballast	7 3	delivered
Pit Sand	9 9	2 miles
Washed Sand	10 9	radius
¾in. Shingle	8 0	Paddington.
¾in. Broken Brick	12 0	
Pan Breeze	8 3	

CEMENT.

Best British Portland Cement. Standard Specification delivered London Area in jute sacks (11 to ton), or paper bags (20 to ton) free (non-returnable) :— £ s. d.
4 ton loads and upwards site ..... Per ton 2 5 0
1 ton to 4 tons site 2 8 0
Alongside Vauxhall in 80-ton lots 2 2 6
"Ferrocrete" Rapid Hardening Cement :—
4 ton loads and upwards site 2 11 0
1 ton to 4 tons site 2 14 0
Alongside Vauxhall in 80-ton lots 2 8 6
Stores in Reserved Bins at Works 1/6 ton extra.
NOTE.—Jute sacks are charged 1s. 6d. each and credited 1s. 6d. nett, if returned in good condition within three months, carriage paid.
"Aquacrete" Water Repellent, "Blue Circle" Cement, 30/- per ton extra on ordinary "Blue Circle" Portland Cement prices.
"Colorcrete" Nos. 1 and 2 Coloured Rapid Hardening Portland Cement in 1-cwt. paper bags free (non-returnable) in 1-ton lots and upwards site 3 14 0
"Colorcrete," not rapid-hardening, in 1-cwt. paper bags free (non-returnable), according to colour, from £7 to £15 10s. per ton.
"Snowcrete" White Portland Cement in 1-cwt. paper bags free (non-returnable) 1 ton and upwards site 8 15 0
Super Cement (Waterproof) paper bags free 3 15 0
Roman Cement £6 15 Keene's Cement, White 5 10 0
Parian Cement £5 10 " " Pink 5 2 6
Cementone Colours for cement according to tints per cwt. from £2 16s. 0d.

PLASTER.

	£ s. d.		£ s. d.
Coarse, Pink	3 0 0	Sirapite, Coarse	3 10 0
" White	3 10 0	" Finish	3 18 0
Pioneer	3 10 6		
Super Carbo	2 7 6	4-ton loads and over London Area, paper bags free.	
Carbo Setting	2 12 6		
Best Ground Blue Lias Lime	1 17 6	Grey Stone Lime	2 2 0
		Chalk Lime	2 2 0
Granite Chippings	1 5 0	Hair per cwt.	2 7 6

NOTE.—Sacks are charged 1s. 9d. each, and credited 1s. 6d., if returned in good condition within three months, carriage paid.
Stourbridge Fireclay in sacks 37s. per ton at rly. dep.

STONE.

BATH STONE.—Delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube .... s. d. 2 10½
BEER STONE—RANDOM BLOCK—
Free on rail at Seaton Station. per ft. cube 2 3
Delivered free on rail Nine Elms, S.R. " 3 1½
Selected approximate size one way, 1d. per cubic ft. extra, selected approximately three sizes or for special work, 3d. per cubic ft. extra.

PORTLAND STONE—
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, S. Rly., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube ..... s. d. 4 5
Do. do. delivered on road waggons as above stations, per ft. cube 4 6
White basebed, 3d. per ft. cube extra.
NOTE.—1d. per ft. cube extra for every ft. over 20 ft. *average* and ½d. beyond 30 ft.
HOPTON-WOOD STONE—
F.O.R. Quarries, Wirksworth, Derbyshire, Random blocks from 10 ft. and over P.ft.cb. 14 0
Sawn two sides 22 6
HOPTON-WOOD STONE—
Sawn three or four sides 27 9
YORK STONE, BLUE—*Robin Hood Quality.*
Delivered at any Goods Station, London.
6 in. sawn two sides landings to sizes (under 30 ft. super) ..... per ft. super 5 0
6 in. rubbed two sides, ditto .. " 5 6
3 in. sawn two sides slabs (random sizes) ..... " 2 3½
2 in. to 2½ in. sawn one side slabs (random sizes) (paving) ..... " 1 6½
1½ in. to 2 in., ditto ..... " 1 3½
HARD YORK—
Delivered at any Goods Station, London.
Scrappled random blocks ..... per ft. cube 6 3
6 in. sawn two sides landings to sizes (under 40 ft. super) ..... per ft. super 5 1½
6 in. rubbed two sides, ditto .... " 6 1½
4 in. sawn two sides slabs (random sizes) ..... " 3 1½
3 in. ditto ditto ..... " 2 5
2 in. self-faced random flags ..... Per yd. super 7 6

CAST STONE.

Delivered in London are in full van loads, per ft. cube: Plain, 7s. 6d. Moulded, 8s. 6d. Sills, 10s. 0d.

HARD WOOD.

1 INCH AND UP THICK.

Average price for prime quality.	£ s. d.
Dry Austrian Wainscot, per ft. cube	0 17 0
Dry American and/or Japanese Figured Oak, per ft. cube	10 0 to 0 12 6
Dry American and/or Japanese plain Oak, per ft. cube	0 11 6
Dry sq.-edged Honduras Mahogany, per ft. cube	0 15 0
Dry log-cut Honduras Mahogany, per ft. cube	12 6 to 0 16 0
Dry Cuba Mahogany, per ft. cube	0 18 0
Dry Teak, per ft. cube	0 14 0
Dry American Whitewood, per ft. cube	0 10 6
Dry Australian Walnut, per ft. cube	0 17 0
Dry Queensland Silky Oak, per ft. cube	0 11 0
Dry African Mahogany, per ft. cube	0 10 0
Dry African Whitewood, per ft. cube	0 8 0
Dry English Wainscot Oak, per ft. cube	0 16 0
Best Scotch Glue, per cwt.	3 0 0
Liquid Glue, per cwt.	4 7 0 to 5 10 0

SOFT WOOD.

GOOD BUILDING DEAL.

Inches.	Per stan.	Inches.	Per stan.
4 ×11	£38 10	3 × 6	£31 10
4 × 9	38 10	3 ×11	38 10
4 × 8	35 10	2 ×11	38 10
4 × 7	35 10	3 × 9	37 10
3 × 8	32 10	2½ × 9	37 10
3 × 7	31 10	3 × 4½	30 0
2½ × 7	31 10	3 × 4	30 0

Having secured the Contract— What about the Steel Scaffolding?

For the lowest Prices apply to the Oldest Firm in The Scaffolding Trade.

STEPHENS & CARTER LTD.
The British Steel Scaffolding Co.
Paddington Green, London, W.2.
Telephone No. PADDINGTON 7661 (6 lines).

PLANED BOARDS.

1 ×11	£43 10	1 × 9	£39 10

PLAIN EDGE FLOORING.

Inches.	Per sq.	Inches.	Per sq.
⅜	22/6	1¼	38/-
½	25/-	1½	42/6
¾	28/6		

TONGUED AND GROOVED FLOORING.

Inches.	Per sq.
1	29/-
1¼	38/6
1½	43/-

MATCHING (BEST)

Inches.	Per sq.
⅜	23/-
½	25/-
1	29/-

Ins. BATTENS.	s. d.
¾×2 per 100 ft.	2 9

SAWN LATHS.	s. d.
Per bundle	2 6

SLATES.

First quality slates from Penrhyn or Portmadoc. carriage paid in full truck loads to London Rate Station. Per 1,000 actual.

	£ s. d.		£ s. d.
24 by 12 ..	31 5 0	18 by 10	16 10 0
22 by 12 ..	26 5 0	18 by 9	14 17 6
22 by 11 ..	23 12 6	16 by 10 ..	14 7 6
20 by 12 ..	23 2 0	16 by 8 ..	11 6 0
20 by 10 ..	20 15 0		

TILES.

Delivered at London rate stations in full truck loads of not less than 6 tons ..... Per 1,000 f.o.r. London.

	£ s. d.
Best machine-made tiles from Broseley or Staffordshire district	4 2 6
Ditto hand-made ditto	4 17 6
Ornamental ditto	5 2 6
Hip and valley tiles (per dozen) Hand-made	0 8 6
Machine-made	0 8 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION PER TON—

	£ s. d.
R.S. Joists, cut and fitted	£16 0 0
Plain Compound Girders	19 0 0
" " Stanchions	21 0 0
In Roof Work	25 0 0

NOTE.—These prices are for standard pieces and not special pieces of an awkward nature.
MILD STEEL ROUNDS.—To London Stations, per ton.

Diameter.	£ s. d.	Diameter.	£ s. d.
½ in.	16 12 6	⅝ in. to ½ in.	15 2 6
⅝ in.	15 12 6	⅝ in. to 2¾ in.	14 12 6

WROUGHT-IRON TUBES AND FITTINGS—
(Discount off List for lot of not less than £10 net value delivered direct from Works, 2½ per cent. less above gross discounts, carriage forward, if sent from London Stocks.)

	Standard Wrot. Mild Steel Tubes. Sizes. ⅛in. to ⅜in.	Standard Wrot. Mild Steel and Tubulars. Sizes. ½in. to 2in.	Standard Flanges. Sizes. ½in. to 2in.	Standard Fittings.
	%	%	%	%
Gas	60	65	62½	58½
Water	57	62½	62½	55
Steam	53½	58½	51½	50
Gal. gas	50	55	51½	48½
Galv. water	45	50	43½	43½
Galv. steam	38½	43½	38½	40

C.I. HALF-ROUND GUTTERS—London Prices ex Works.

Per yd. in 6 ft. lengths.	Gutters.	Angles and Nozzles.	Stop. Ends
3 in.	1/2½	1/-	4d
3½ in.	1/3½	1/1½	4d.
4 in.	1/3½	1/2½	5½d.
4½ in.	1/4½	1/4½	6½d.
5 in.	1/7½	1/6½	7½d.

O.G. GUTTERS.

3 in.	1/6½	1/4	4½d.
3½ in.	1/8½	1/4	5½d.
4 in.	1/8½	1/4½	6½d.
4½ in.	1/9½	1/7½	7½d.
5 in.	2/3	1/10½	8½d.

RAIN WATER PIPES, &c.

Per yd. in 6 fts.	Pipe.	Bends, stock angles.	Branches. stock angles.
2 in.	1/9½	1/2½	1/9½
2½ in.	1/10½	1/4½	2/2
3 in.	2/4	1/8½	2/7½
3½ in.	2/9½	2/1	3/0½
4 in.	3/2½	2/6	3/7½

NETT PRICES.
Tonnage allowance—4-ton lots, 5 per cent.
2-ton lots, 2½ per cent.

L.C.C. COATED SOIL PIPES—London Prices, ex Stock.

	Pipe. s. d.	Bends, stock angle. s. d.	Branches. stock angles. s. d.
2 in. per yd. in 6 fts.	3 0½	2 2	2 7½
2½ in. "	3 7½	2 5	3 3½
3 in. "	3 10½	2 7½	3 11
3½ in. "	3 11½	3 2½	4 6
4 in. "	4 3½	3 7½	5 2½

L.C.C. COATED DRAIN PIPES.—London Prices, ex Stock.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches. stock angles. s. d.
3 in. per yd. in 9 ft. lengths	4 8	5 6	8 9
cwt. qr. lbs.			
4 in. " 1 1 20	6 7	6 3	11 0
5 in. " 1 2 22	8 3	11 3	17 0
6 in. " 2 0 6	9 9	13 0	21 3

Gaskin for jointing 65/- per cwt.

* The information given on this page has been specially compiled for THE BUILDER, and is copyright. The aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information. Prices are subject to 2½ per cent. cash discount.

PRICES CURRENT OF MATERIALS—(*contd.*)

	Per ton. £ s. d.		London. £ s. d.
IRON—			
Common Bars	12 15 0	..	13 15 0
Staffordshire Crown Bars—			
Good merchant quality	14 10 0	to	16 0 0
Staffordshire Marked Bars	18 0 0	..	19 0 0
Mild Steel Bars	12 18 0	..	13 18 0
Steel Bars, Ferro-Concrete quality, basic price	14 8 0	..	15 8 0
Hoop iron, basic prices	14 8 0	..	15 8 0
„ Galvanised	24 8 0	..	26 8 0
IRON—	Per ton in London.		
Soft Steel Sheets, Black—	£ s. d.		£ s. d.
Ordinary sizes, to 20 g.	16 5 0	..	17 5 0
„ „ 24 g.	17 5 0	..	18 5 0
„ „ 26 g.	18 5 0	..	19 5 0
Sheets, Flat, Best Soft Steel, C. R. and C.A. quality—			
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 22 g. and 24 g.	17 10 0	..	18 10 0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 26 g.	19 10 0	..	20 10 0
No. 1 quality £4 per ton extra.			
Flat and Galvanised Corrugated Sheets—			
Ordinary sizes 6 ft. to 9 ft. to 20 g.	18 5 0	..	20 5 0
Ordinary sizes, 6 ft. to 9 ft. to 22 g. and 24 g.	18 15 0	..	22 5 0
Ordinary sizes, 6 ft. to 9 ft. to 26 g.	20 15 0	..	22 15 0
Sheets, Gavanised, Flat, Best quality—			
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	19 5 0	..	22 5 0
Best Soft Steel Sheets, 22 g. and 24 g.	20 5 0	..	21 15 0
Best Soft Steel Sheets, 26 g.	21 15 0	..	22 15 0
Cut Nails, 3 in. to 6 in.	19 0 0	..	21 0 0
(Under 3 in. usual trade extras.)			

METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats and delivery to job, average price about 1s. 4d. to 1s. 7d. per foot super.

COPPER.

		s. d.
Seamless Copper tubes (basis)	per lb.	1 1
Strong sheet	„	1 3
Thin	„	1 4
Copper nails	„	1 3
Copper wire	„	1 3

PLUMBERS' BRASS WORK.

Delivered in London.
Stamped by Met. Water Board.

CRUTCH HEAD SCREW DOWN BIB COCKS FOR IRON. EASY CLEAN.

½ in.	¾ in.
29/-	45/- per doz.

CHROMIUM PLATED TOILET SCREW DOWN BIB COCKS FOR IRON. EASY CLEAN.

½ in.	¾ in.
40/-	59/- per doz.

SCREW DOWN STOP COCKS FOR IRON.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	
31/-	44/6	75/-	175/-	250/-	396/-	per doz.

SCREW DOWN STOP COCKS WITH TWO UNIONS FOR LEAD.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	
42/6	65/-	102/-	195/-	210/-	510/-	per doz.

DOUBLE NUT BOILER SCREWS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	
7/6	9/-	14/-	24/-	37/6	54/-	per doz.

HEAVY CROYDON BALL VALVES.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	
33/6	55/6	85/-	165/-	237/-	per doz.

CAPS AND SCREWS.

1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.	
9/-	11/-	16/6	29/-	42/-	45/-	per doz.

BRASS FERRULES OF SLEEVES.

1¼ in.	2 in.	3 in.	3½ in.	4 in.	
9/6	11/6	20/6	26/-	37/-	per doz.

DRAWN LEAD TRAPS WITH BRASS CLEANING SCREWS.

	1¼ in.	1½ in.	2 in.	3 in.	
8 lb. Lead P...	17/6	23/-	32/6	66/6	per doz.
8 lb. Lead S...	21/6	27/6	39/6	73/-	per doz.

SOLDER.—Plumbers', 1/2, Tinmen's, 1/4, Blowpipe, 1/6 per lb.

PAINTS, &c.

		£ s. d.
Raw Linseed Oil, in drums	per gallon	0 3 10
Boiled „ „ in drums	„	0 4 2
Turpentine, in drums (10 gals.)	„	0 6 0
Genuine Ground English White Lead, per ton (In not less than 5-cwt. casks.)		53 0 0
Extra for 1-cwt. kegs over 5-cwt. casks is 2/9 cwt.		
GENUINE WHITE LEAD PAINT. "Father Thames," "Nine Elms," "Park," "Supremus," "St. Paul's," "Morganswyte," "Polacco," "J" Brand, and other best brands (in 14-lb. tins) not less than 5-cwt. lots per ton delivered		72 10 0
Red Lead, Dry (packages extra)	per ton	45 0 0
Best Linseed Oil Putty	per cwt.	0 15 0
Size. XD quality	fkn.	0 3 6

Turpentine substitute can be obtained and prices vary according to the quality from 2/9 gallon upwards.

VARNISHES, &c.

		Per gallon.
Oak Varnish	Outside	0 14 0
Fine do.	„	0 16 0
Fine Copal	„	0 18 0
Pale Copal	„	1 0 0
Pale Opal Carriage	„	1 4 0
Best do.	„	1 12 0
Floor Varnish	Inside	0 18 0
Fine Pale Paper	„	0 18 0
Fine Copal Cabinet	„	1 2 0
Fine Copal Flatting	„	1 0 0
Hard Drying Oak	„	0 18 0
Fine Hard Drying Oak	„	0 19 6
Fine Copal Varnish	Inside	1 0 6
Pale do.	„	1 12 0
Best do.	„	1 2 6
Best Japan Gold Size		1 12 6
Best Black Japan		0 10 0
Oak and Mahogany Stain (water)		0 12 0
Brunswick Black		0 7 6
Berlin Black		0 14 0
Knotting (patent)		0 15 0
French and Brush Polish		0 12 0
Liquid Dryers in Terebene		0 9 0
Cuirass Black Enamel		0 7 0

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

ORDINARY GLAZING QUALITY AND SELECTED GLAZING QUALITY.

per ft. super.		per ft. super.
18 oz. O.Q.	2¼d.	32 oz. O.Q. 5¼d.
18 „ S.Q.	2⅝d.	32 „ S.Q. 6¼d.
24 „ O.Q.	3¼d.	Obscured Sheet, 18 oz. 3d.
24 „ S.Q.	3⅝d.	„ „ 24 „ 4¼d.
26 „ O.Q.	3⅝d.	Fluted 21 „ 9d.
26 „ S.Q.	4¼d.	Em'lld 18 oz., 5¼d., 24oz. 6⅝d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE AND FIGURED CATHEDRAL, ETC., IN CUT SIZES.

	Per ft.
Rolled plate, ⅛ in.	5¼d.
Rough cast double rolled, 3/16 in.	6⅛d.
Rough cast double rolled, ¼ in.	6¾d.
Figured rolled, etc., white	6¼d.
Figured rolled, etc., tinted	9¼d.
Rolled Sheet	6d.
White rolled cathedral	6d.
Tinted rolled cathedral	8¼d.

Rolled plate is the same price as rough cast double rolled.

	Per ft. s. d.
Reeded, Broad Reeded, Cross Reeded and Chevron Reeded, ⅛ in. thick	0 10½
Wire Rolled, ⅛ in. thick	0 9½
Wired Cast, ⅛ in. thick	0 9½
"Calores" Sheet, 21 oz.	2 6
„ „ 32 oz.	4 0
„ Cast, ⅛ in. thick	0 10
„ „ 3/16 in. thick	1 0
„ „ ¼ in. thick	1 2
"VITA" GLASS.	s. d.
Clearsheet—not exceeding 1 foot	1 0
„ „ 2 feet	1 3
„ over 2 feet	1 9
Polished plate not exceeding 1 foot	1 6
„ „ 2 feet	3 0
Cathedral—not exceeding 1 foot	1 0
„ larger size	1 6
Horticultural Sheet and Cathedral "Vita" Glass Sizes up to 24 inches by 18 inches or not exceeding 3 feet	1 0
3/16 in. Wired Georgian Design. Sizes up to 96 inches long by up to 24 inches wide	2 6

LEAD, &c.

(Delivered in London.)	Per ton. £ s. d.
LEAD.—Sheet, English, 4 lb. and up	34 10 0
Pipe in coils	35 0 0
Soil pipe	39 10 0
Compo pipe	41 5 0

NOTE.—Country delivery, 20/- per ton extra, lots under 3 cwt. 4/- per cwt. extra and over 3 cwt. and under 5 cwt., 2/6 per cwt. extra. Cut to sizes, 4/- per cwt. extra.

Old lead, ex London area, at Mills, per ton	£22 10 0

BUILDING TRADE WAGES IN SCOTLAND

Following are grade rates authorised by the Scottish N.J.C. from December 1. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur.

Grade Classification	A	A¹	A²	A³	B	B¹
Craftsmen	1/8½	1/8	1/7½	1/7	1/6½	1/6
Labourers	1/3½	1/3¼	1/2¾	1/2½	1/2	1/1¾

Aberdeen	A	Dumfriesshire	A²	Inverness	*	Perthshire	A³
Ayrshire	A	Dundee	A	Inverurie	A¹	Peterhead	A¹
Banff	B	Dunoon	A	Kincardineshire	A²	Renfrewshire	A
Berwickshire	A²	East Fife	A	Kinross-shire	A	Rothesay	A
Bridge of Allan	A	East Lothian	A	Lanarkshire	A	Roxburghshire	A²
Broughty Ferry	A	Edinburgh	A	Midlothian	A	St. Andrews	A
Clackmannanshire	A	Fifeshire	A	Monifieth	A	Selkirkshire	A²
Doune	A	Forfarshire	A³	Moray and Nairn	B	Stewartry	A²
Dunblane	A	Glasgow	A	Newport	A	Stirlingshire	A
Dumbartonshire	A	Greenock	A	Peeblesshire	A²	Stornoway	A²
Dumfries	A¹	Hamilton	A	Perth	A	Tayport	A
						West Lothian	A

*This town has its own rates: Masons, 1/6½; Carpenters, 1/6½; Slaters, 1/6½; Plumbers, 1/7; Plasterers, 1/7½, but 1/8½ is paid owing to the scarcity at present; Painters, 1/6½ and Labourers, 1/2.

The information given in this table is copyright. Rates of wages in England and Wales are given on page 862

THE SCOTTISH BUILDER

NEW BUILDINGS

BRIDGE-OF-EARN. — HOSPITAL.—Plans have been prepared by Messrs. Stewart and Paterson, architects, 16, Blytheswood-square, West George-street, Glasgow, for new hospital, etc.

EDINBURGH. — CANTEEN. — Plans have been prepared for Messrs. John Smith and Co. (Paper), Ltd., Lochrin-terrace, for canteen and other buildings at Home-street.

GLASGOW. — BUILDINGS. — Development schemes involving a total expenditure of £670,000 are to be submitted to the Government for approval by the Corporation. The programme includes new stations for the fire and lighting departments, sewer contracts for Shieldhall, the extension of the Mitchell Library, additions to the cleansing works at Govan and St. Rollox, and reconstructions in five gasworks, costing £285,000.

GLASGOW.—BUILDING.—Mr. J. B. Wingate, Westbourne-crescent, Bearsden, is architect for additions at 41 to 47, Argyll-street, for Morrisons (Gowns), Ltd., 43, Argyll-street. Plans prepared by Mr. A. Findlay, Transport House, Bath-street, for extensions to the Corporation 'bus garage at Crayton-road, Govan. Plans prepared for reconstruction and additions for the Acme Tea Chest Co., Ltd., Tolmadie-road, Oatlands. The architect is Mr. J. W. MacDonald, 3, Balmadie-road, Bishopbriggs.

GLASGOW.—PREMISES. — Plans prepared by Mr. J. Austin Laird, architect, 55, West Regent-street, for additions at Shuna-street, Ruchill-road, Maryhill, for G. MacLellan and Co. (Glasgow), Ltd.

HARTWELL.—HOUSES.—166 houses to be erected by the Scottish Special Areas Housing Association, Ltd., 11, Drumsheugh-gardens, West End, Edinburgh. Plans by own architects.

KILMARNOCK. — SCHOOL. — Plans prepared by Mr. W. Reid, architect, Wellington-chambers, off the Sandgate, Ayr, for the rebuilding of the Grange school which was destroyed by fire.

MAYBOLE. — FIRE STATION.— The Corporation is to construct new fire station. Plans by the Burgh Architect.

NEW COMPANIES

THE particulars quoted below have been compiled by Messrs. Jordan and Sons, Ltd., Company Registration Agents, of 116 and 117, Chancery-lane, W.C.2, from the documents available at the Companies Registry.

MACKAY PLANT HIRE, LTD. (357694).—Registered November 15. To acquire plant for use in connection with the excavation and building of works of all kinds, etc. Nominal capital: £2,400. A. G. Maby, 5, Thavies Inn, E.C.1.

G. W. MALLER AND SONS, LTD. (357691).—Registered November 15. Rowcroft Retreat, Stroud. Plumber and domestic engineer, etc. Nominal capital: £1,000.

FULLER HORSEY, SONS AND CASSELL. (357870).—Registered November 25. 11, Billiter-square, E.C. Surveyors and estate agents. Nominal capital: £10,000.

D. STANSFIELD, LTD. (357825).—Registered November 23. Clifton-road, Marton, Blackpool, Lancs. Manufacturing joiner and timber merchant. Nominal capital: £5,000.

LIGGINS ESTATES, LTD. (357809).—Registered November 22. Liverpool-road, Sankey, Warrington. Building contractors, estate developers, etc. Nominal capital: £1,000.

TENDERS

The Editor welcomes authentic information for this feature from architects, surveyors or contractors. Items should reach 4, Catherine-street, Aldwych, W.C.2, not later than Wednesday morning.

Tenders for A.R.P. work will be found under "A.R.P. Schemes."

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modification.*
¶ Denotes *accepted by H.M. Government departments.*

Aberdeen.—Police station and offices at Lodge Walk, for T.C. Mr. Albert Gardner, architect and quantity surveyor, 11, Broad-st., The Castlegate :—General contractors—*J. Scott & Co. (Aberdeen), Ltd.; steel construction—*G. Bissett & Son, Ltd.; steel windows and casements, etc.—*Mellows & Co., Ltd., Sheffield; joinery, carpentry and ironmongery—*A. Rateray, Ltd.; tile and terrazzo—*Toppolo, Jackson & Co., Ltd., Glasgow; plumbing and sanitary engineering—*J. Dean; electrical fittings and installation, etc.—*Allan & Smith, Ltd.; heating engineering and ventilation installation—*G. N. Haden & Sons, Ltd., Glasgow. (Rest of Aberdeen.)

Abington.—Water supply, drainage and access road for evacuation camp at Glengonnar, Abington, for Scottish Special Housing Assn., Ltd. Crouch and Hogg, chartered civil engineers, 17, Woodside-cres., Glasgow, C.3 :—*Murdoch Mackenzie, Ltd., Motherwell.

Antrim.—Tar and other road surface dressing materials, for C.C. W. Grigor, C.S., Crumlin-rd., Belfast :—Tar per gallon—*Belfast Corporation Gas-wks., Bankmore-st., Belfast, 4⅝d. and 4⅞d.; *C. Tennant and Co., Ltd., 94, Royal-av., Belfast, 5½d. Tar and bitumen compound per gallon—*C. Tennant and Co., Ltd., 94, Royal-av., Belfast, 5d., 5½d. and 5⅝d.

Armagh. — Road tar, for C.C. E. M. Connell, C.S., Armagh :—*Charles Tennant and Co., Ltd., Royal-av., Belfast, 5¼d. per gal.

Ashton-under-Lyme. — Improvement of church and school, for Rev. W. Brandwood and Parochial Council of St. John's Church, Hurst. R. Martin, F.R.I.B.A., Diocesan Surveyor, 90, Deansgate, Manchester :—*J. and J. Parish, Ltd., Withington, Manchester, 20; tiling, *William Royle and Co., Manchester, 2. (Cost £3,500.)

Barnsley.—Pithead baths at Rockingham Hoyland Silkstone Collieries for Miners' Welfare Central Fund Committee. Plans prepared in Architects' Department, Romney House, Tufton-st., London, S.W.1 :—*W. Johnson and Sons (Contractors), Ltd., Park-st., Wombwell, £16,683.

Battersea.—Works for B.C. : Cleansing and redecorating works at 71 dwellings :—*Borough Surveyor, £429 8s.; concrete roof at Lavender-hill sub-station :—*L. H. and R. Roberts, Ltd., Southampton-row, W.C.1, £250.

Blackpool.—Extension of central heating apparatus at Hawes Side police sub-station for T.C. :—*Lawrence and Co., Blackpool.

Bolton.—Alterations to Halliwell-rd. clothing works for Montague Burton, Ltd., Hudson-rd. Mills, Leeds. N. Martin, L.R.I.B.A., Resident Architect :— *Works Dept., Montague Burton, Ltd., Hudson-rd. Woollen Mills, Leeds.

Bryn-yr-Efail.—Alterations and additions to school for Caernarvonshire E.C. W. Lloyd Jones, F.R.I.B.A., County Architect, Caernarvon :—*G. and J. P. Gregory, 24, High-st., Caernarvon, £12,876.

Chesterfield.—Erection of St. Mark's church hall, Lower Brampton, for Derby Diocesan Board, and Rev. E. Gardin and Parochial Council in St. Mark's-rd. J. Harold Gibbons, F.R.I.B.A., architect, Abbey House, Victoria-st., Westminster, S.W.1 :—*C. E. Gaunt and Sons, West Bars, Chesterfield, £5,000.

Lewisham.—Additional depot accommodation for air raid precautions services and personnel, for B.C. :—

	Timber. £ s. d.	Alternative. £ s. d.	Percentage on actual cost.
*H. & J. Taylor (Contractors), Ltd. ...	4,794 0 0	—	10 per cent.
Henry Kent (Builders), Ltd.	3,900 0 0	3,800 0 0	10 ,, ,,
Wates, Ltd.	—	3,350 0 0	8 ,, ,,
	—	3,541 10 6	
Powell, Driver & Foster	4,389 0 0	6,138 0 0	8 ,, ,,
Corolite Construction Co., Ltd.	4,386 0 0	4,850 0 0	10 ,, ,,
J. Thorn & Sons, Ltd.	3,915 0 0	—	12½ ,, ,,
Lewisham Timber Co.	—	—	

Coatbridge.—Tramway depot and offices, etc., for T.C. A. Findlay, architect, Transport House, Bath-st. :—‡T. Cooper & Co., Ltd., Glasgow.

Croydon.—Structural alterations to Croydon High School for Girls, for T.C. : *E. H. Smith (Croydon), Ltd., £297 10s.

Dartford.—Interior decoration of 350 houses on housing estate, for T.C. :—

Cyril H. Tebbutt (Decorators), Ltd.	£5,075
J. W. Fautley & Co.	1,752
Norman, Wright (Builders), Ltd.	1,747
Sykes & Son, Ltd.	1,575
H. & J. Taylor (Contractors), Ltd.	1,525
Standage & Co., Ltd.	1,427
T. Wallis	1,378
Decra, Ltd.	1,350
Yeomans & Partners, Ltd.	1,313
A. Bryans	1,265
H. F. Wilkins & Co., Ltd. ...	1,209
H. Lawrence & Sons	1,204
W. L. Fisher	1,112
R. E. Holmes	1,085
South London Decorators, Ltd.	1,070
E. Proctor & Sons	1,025
Balderson & Dickinson	1,015
O. M. Keevil	1,009
F. & Geo. Jones & Son	980
A. E. Martin	925
‡C. J. Manning (Builders), Ltd.	862
Robinson & Co.	677

Durham.—Rebuilding of steps, supporting walls, railings, and all incidental work in connection therewith at Lambton-walk, Framwellgate Bridge, for T.C. J. W. Green, City Engineer and Architect :—*T. Coates, Hallgarth-st., Durham, £492 19s.

Ellesmere.—Wiring of new Council houses for electricity, for R.D.C. :—*Thomasson and Co., £135.

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Gateshead.—Extensions to factory of Fibreboard Boxes, Ltd., North-Eastern Trading Estate :—*H. E. Pitt, Ltd., Leopold-st., Millfield, Sunderland.

Glasgow.—Extensions, etc., at the Temple Saw Mills, Bearsden-rd. J. Laird and Son, architects, 11, Bothwell-st. :—Building and joinery—*Robinson, Dunn & Co., Ltd., Glasgow.

Glasgow.—Block of offices, Gordon-st., for the Scottish Amicable Assurance Co., Ltd., Melville-st., Edinburgh. T. Aikman Swan, architect, 7, St. Colne-st., Edinburgh. Messrs. R. and G. K. Smith, quantity surveyors, 4, Forbes-pl., Edinburgh :—Excavation, brick and building, etc.—*J. Train & Co., Ltd., Glasgow; steel structural—*Colvilles, Ltd., Motherwell, Wishaw; joinery, carpentry and ironmongery—*John Cochrane Trust, Glasgow; plumber and sanitary engineering—*A. Lowe and Co., Ltd., Partick; asphalte—*Limmer and Trinidad Lake Asphalting Co., Ltd., Glasgow; steel windows and casements, etc.—*H. Hope and Co., Ltd., Smethwick; glazing—*Western Glass and Glazing Co., Ltd., Glasgow; terrazzo, tile and marble—*J. Youden & Co., Ltd., Glasgow; plaster, lathing—*D. Livingstone & Sons, Ltd., Glasgow; heating, engineering and installation, etc.—*MacKenzie & Moncur, Ltd., Edinburgh.

Hereford.—Hall, Hoarwithy-st., for Trustees of Y.M.C.A. H. A. Thomas, architect, 35, Dale-st., Liverpool :—*T. F. Nash (Construction), Ltd., Uxbridge-rd., Hayes, Middlesex.

Hindley.—A.R.P. shelters for U.D.C. O. P. Abbott, S. :—W. J. Bickerstaff and Son, Wigan, £2,300; Nixon and Boardman, Orrell, Wigan, £1,089; James Gaskill, Orrell, Wigan, £1,089; J. W. Liptrot, Orrell, Wigan, £1,089. (Contract divided.)

¶London (Air Ministry).—Contracts placed for the week ended December 16 :—Artificers' works, W. Greetham and Son, Skegness, F. Hutton and Son, Ltd., Colchester, Hosking and Son (Essex), Ltd., Rayleigh, and Holborow and Sons, Ltd., Tetbury; district heating, G. N. Haden and Sons, Ltd., London; runways and land levelling, Geo. Wimpey and Co., Ltd., London; hutting, Crosby and Co., Ltd., Farnham, and H. C. Janes, Ltd., Luton; structural steelwork, Brownlie and Murray, Ltd., Glasgow; Fleming Bros., Ltd., Glasgow, Rees and Kirby, Ltd., Swansea, and A. and J. Main and Co., Ltd., London.

¶London (War Department). — Contracts placed during the week ended December 12 :—Hutments : Kent and Surrey, G. H. Burgess, Alpha Wharf, Havelock-rd., Southall; Essex, Rose Bros., Mistley; Lancashire, Rush Bros. and Co., Claremont-rd., Sawmills, Seaforth, Liverpool; Nottinghamshire, Bosworth and Co. (Contractors), Ltd., Haydn-rd., Nottingham. Miscellaneous works : Wiltshire, W. E. Chivers and Sons, Ltd., Estcourt-st., Devizes. Steelwork : Nottinghamshire, Richards (Leicester), Ltd., Phœnix Ironworks, Leicester. Heating work : Renfrewshire, Carrier Engineering Co., Ltd., Bolney Court, Bolney, Surrey. Electrical work : Yorkshire, Berkeley Electrical Engineering Co., Ltd., Vincent House, Vincent-sq., London, S.W.1.

Luton.—36,500 yds. of spun-iron water pipes for R.D.C. H. Pickering, M.Inst.M. & Cy.E., 73, West-parade, Dunstable. Quantities by E. : — *Cochranes (Middlesbro') Foundry, Ltd., Ormesby Ironworks, Middlesbrough.

Middlesex.—Works, for C.C. :—Resurfacing works on Greenford-rd., Ruislip-rd. and North Circular-rd.—*Limmer & Trinidad Lake Asphalt Co., Ltd., £3,170 18s. 8d., and *Highways Construction Co., Ltd., £731 and £2,354 15s.

Alternative accommodation for tuberculous patients, Central Middlesex County Hospital—

W. & F. Doughty, Ltd. ...	£9,853	0
J. C. Rackman	(a)	
H. J. E. Simmonds, Herts	8,852	8
W. S. Try, Ltd., Uxbridge	8,253	0
*J. Harrison (London), Ltd., S.E.5	7,770	0

(a) Percentage basis of 15 per cent. on current district rates of wages; 10 per cent. above net cost of materials.

Repairs, Holly Hill Farm, Enfield Chase—

Renovations and repairs—		
*Townsend & Collins, Ltd. ...	£1,408	0
Water main—		
*Townsend & Collins, Ltd. ...	347	0
Electrical installation—		
*Middlesex Electrical Co., Ltd.	240	5

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Alterations and restoration to the farm buildings at Parkside Farm, Enfield—Alterations to house—*A. Harston & Co., Enfield, £139 2s. 6d.; alteration and restoration of farm buildings—*S. Worboys & Sons, Potters Bar, £289 11s. 9d. Heating installation in temporary accommodation for adult patients at Hillingdon County Hospital—‡Grant Engineering Co., £2,434 7s.

Near Selby.—Concrete tube outfalls on piled foundations, fixing of tidal flaps and other work at eleven cloughs in Rivers Ouse and Derwent between Newlands Farm near Selby and Lower Hagthorpe near Loftsome Bridge, for Cliffe Internal Drainage Board. Fairbank and Son, engineers, Barclays Bank-chs., St. Helen's-sq., York :—*Squires and Sons, Ltd., Portholme-works, Selby.

Oakham.—Convenience for U.D.C. Messrs. Shelbourn, Son and Litchfield, architects :—*W. Higgs and Sons, High-st., Oakham.

Petersfield.—For painting approximately 1,200 super yards of corrugated iron fencing at Rowlands Castle sewage works, for R.D.C. D. A. Thomas, E. and S. : *Duke and Hellier, Westbourne, Emsworth. £35.

Pewsey.—20 ledged and braced doors, together with frames, at 1 to 20, Haines-ter., for R.D.C. W. P. Carpenter, Building S. :—*W. J. New, Collingbourne Ducis, £50 2s.

Richmond (Yorks).—Mortuary, for T.C. :—*J. Richmond and Sons, £239.

Romford.—Works for T.C. :—Repointing 17 houses, Park Farm : *Wood and Wren, Ltd., £116; erection and waterproofing of shelter : *W. H. Gaze and Sons, Ltd (£2 16s. per shelter for concreting only) and £4 8s. 6d. per shelter for erection and concreting in both cases to a depth of 3 ft.).

Scunthorpe.—Lavatory accommodation at Mary-st. electricity sub-station, for T.C. W. Farrar, Assoc.M.Inst.C.E., B.E. and S. :—*F. J. Brown, 136, Doncaster-rd., Scunthorpe.

Stretford. — Interior renovating 165 houses, for T.C. :—*J. Derbyshire, Old Trafford (14), £166 5s.; E. Tate, Flixton (12), £141 15s.; C. F. Harris, Old Trafford (15), £172 10s.; W. Gowling, Stretford (17), £165 15s.; Kilbourn's, Longsight (13), £150 16s.; G. A. Fryer & Son, Ltd., Flixton (14), £157 10s.; W. M. Costin & Son, Stretford (14), £139 17s.; Wm. Whiteside, Urmston (18), £175 10s.; A. Reeves, Salford (18), £180; J. H. Potter, Urmston (18), £140; T. R. Moran & Sons, Prestwich (16), £175 4s.

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38, WOOD LANE, SHEPHERD'S BUSH, W.12.

Sunderland.—Electrical re-wiring of Municipal hospital for T.C. J. E. Lewis, B.E. :—*F. Reid, Ferens and Co., Ltd., Mary-st., Sunderland, £1,771.

Wandsworth.—Works for B.C. : Taking down existing railings and supplying and erecting about 254 lin. yd. of wrought iron railings and gate at King George's Park, Southfields :—*T. W. Palmer and Co., £319 12s. 4d.; supplying reinforcement and fixing concrete blocks at Portslade-rd. railway arch for A.R.P. shelters :—*Whaddon Concrete and Building Material Co., Ltd., £112 10s.

West Derwent.—Extensions, repair and replacement of tidal doors at nine cloughs situated on River Derwent between Bowthorpe Hall and Thicket Priory, for Internal Drainage Beard. Fairbank and Son, engineers, Barclays Bank-chams., St. Helen's-sq., York : —*Squires and Sons, Ltd., Portholme-wks., Selby, Yorks.

West Hartlepool. — Converting Church-square school into art school, for E.C. :—*Baggott Brothers, West Hartlepool.

West Hartlepool.—Hangar at airport, for T.C. :—*Head, Wrightson and Co., Ltd., Stockton.

Widnes. — Ambulance rooms and first-aid post, for Orr's White Vine Chemical Works. Plans prepared by own architect :—Contractors — *Cleaton Poplars, Highfield-rd., Widnes; terrazzo—*Terra Dura Flooring Co., Ltd., Norden-st., Miles Platting, Manchester, 10.

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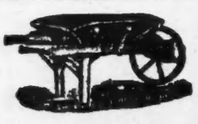

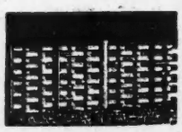

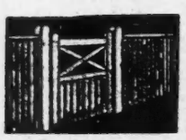

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